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COMPUTERWORLD

Document control to join software suites

By Michael Vizard

Three major providers of workgroup applications are readying plans to target document management in the race to provide a full suite of products for collaborative computing.

But the approaches that Microsoft Corp., Lotus Development Corp. and WordPerfect Corp. will take toward providing support for document management systems will differ as much as their individual approaches to groupware.

The need for document management is driven by the increasing complexity of PC applications software. Since applications are oo longer discrete entities, users are integrating and sharing with ooe another data that has been created across a large oumber of applications.

"We think there is a need for a document managemeot product, and we're hearing a lot of requests

Document control, *page 16*

Growing up

The entire workgroup applications market, including basic E-mail, is expected to reach $1.3 billion by 1996. Document management, which accounted for about $52 million, or 15%, of the workgroup applications market in 1992, is expected to be valued at more than $400 million by 1996, according to International Data Corp.

IBM attacks backlog

PC Co. to take custom approach to filling customer orders

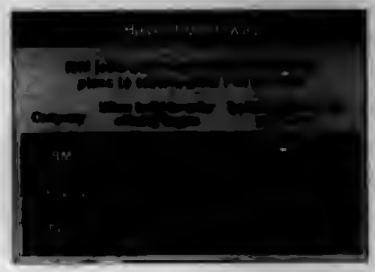
By Michael Fitzgerald and Ed Scannell
RALEIGH, N.C.

■ Months behind schedule, the IBM PC Co. last week finally put some muscle behind its build-to-order strategy in a move that could make a dent in some of its delivery problems.

PC Co. officials confirmed that the company's PC Direct unit would begin preinstalling operating systems and 27 applications nnder its Soft Select program. In combination with a recently installed custom hardware manufacturing capability, PC Co. officials said they can now truly build systems to order through PC Direct.

Next week the company will announce that it is using a new ordering system based on a software program from Trilogy Developmeot Group to better streamline its build-to-order operations. The software gives IBM a more efficient way to mix and match products based on factors such as availability, functionality and price.

Analysts said an effectively executed, broad-based, build-to-order strategy would help IBM sharply reduce its backlogs, which have begun to damage the PC Co.'s sales growth [CW, Oct. 4]. Build-to-order would require the PC Co. to have just-in-time inventory management, electronic links to soppliers and other infrastructure changes.

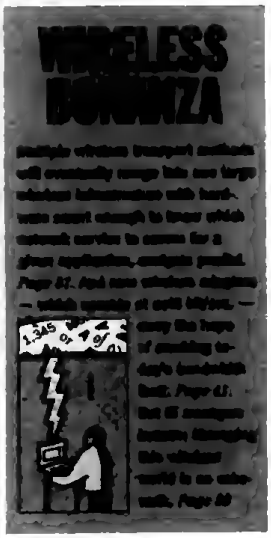


At the launch of the PC Co. last September, company officials said they hoped to have an effective build-to-order business in place no later than May. The oew approach would allow the company to better compete for the business it was losing in large chunks to aggressive companies such as Dell Computer Corp., which forged the concept of build-to-order.

Bruce Claflin, president of PC Co. Americas, said that although PC Direct is not targeted at large corporate users, the PC Co. will expand the program broadly to include Premium Partners, resellers and retail channels. He declined to specify dates.

While IBM and other major ven-

IBM, *page 7*

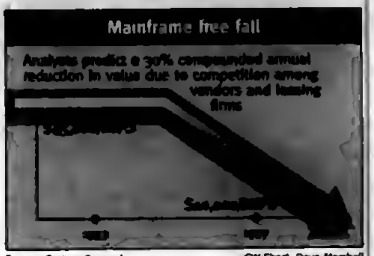


More mainframe blues

ICC stalked by leasing woes?

By Johanna Ambrosio
STAMFORD, CONN.

IBM Credit Corp. Presideot Harry Kavetas' disclosure last week that he plans to resign at year's end is overshadowed by the cloud of uncertainty already looming over IBM's leasing subsidiary.



Source: Gartner Group, Inc. CW Chart: Dave Marshall

A large portioo of ICC's portfolio, as with most lessors, comprises IBM mainframes. But the mainframe industry is weakening: Fewer machines are being shipped, and prices for oew machines are falling faster than ever before (see chart).

The resulting conditions are wreaking havoc with the so-called residual value of the machines at the end of the lease period.

Some industry watchers said ICC may have to take a huge write-off within a coople of years to compensate for its policy of being the low bidder on many leases. As prices keep falling, leases signed several years ago become worth less and less, and profits become harder to eke out when machines are returned to ICC for resale.

"They bave exposures, and there are problems coming," said Bob Djurdjevic, president of An-

ICC, *page 8*

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Apple can't beat 'em, will sell Windows apps

By James Daly
CUPERTINO, CALIF

Apple Computer, Inc. is likely to startle long-time Macintosh users early oext year when it begins selling CD-based software for Microsoft Corp.'s archrival Windows.

Apple will down a major hunk of humble pie with the launch of its Software Dispatch program, which will offer both Macintosh and Windows applications. But the economic allure of the rapidly growing Windows market has proved too great.

"We're not living with blinders on," said Scott Schnell, general manager of Software Dispatch, a new business unit within Apple that could announce its first CD as early as this week. "Selling Windows software will be a tremendously good business for us to be in."

Software Dispatch is also an effort by Apple to take advantage of a new way of selling CD-ROM-based software applications to corporate America. Once per quarter, corporate software shoppers will be sent a CD that contains anywhere from 50 to 100 titles. Applications for the PowerPC platform will be featured as they become available next year.

Each program is encrypted, except for a

Apple, *page 16*

Apple is working with resellers to slip the Software Dispatch disk into the cartons of Macintoshes that ship with a CD-ROM. If a customer buys an application discovered on the disk, the reseller gets a cut of the profits.

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■ **X/Open** is expected to announce this week that it will certify an industry-standard "Unix" brand name, bringing more unity to the Unix world. *Page 4*

■ **Wal-Mart** promoted its CIO to a new position: president of the $55 billion company's international division. *Page 6*

■ **Freeport-McMoRan** and ISSC are replacing their mainframe-intensive outsourcing deal with a contract emphasizing labor costs, as Freeport moves to Unix. *Page 6*

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■ **The bickering between Microsoft and Novell** over NetWare support in Windows NT is a lose-lose proposition for customers, Elisabeth Horwitt argues. *Page 41*

■ **IBM** is passing up a big opportunity by ignoring its small to medium-size **mainframe customers**, Johanna Ambrosio says. *Page 63*

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Executive Briefing

Microsoft may not be loved, but it continues to be the 500-pound gorilla of the desktop. Apple is reportedly prepared to start selling Windows software, reasoning that the market is too big to pass up. *Page 1* **IBM is running into problems selling PC-DOS 6.1 on the MS-DOS-dominated desktop.** *Page 35* **And Microsoft itself is turning up the heat in suite sales by providing more flexible installation options and custom support.** *Page 10.*

The Novell/Microsoft battle continues to vex users, however. Microsoft dodged questions last week on its plans to support NetWare from its Hermes system management platform. *Page 15* And the refusal of the two vendors to cooperate on NT-to-NetWare integration is giving users a pain in the LAN. *Page 41*

There were plenty of new products at Networld '93, including LAN management offerings from IBM, Novell, Hewlett-Packard and Digital. *Page 14* Hub makers continue to stuff more functionality into their boxes. Network will offer a built-in PC and 100M bit/sec. Ethernet support in its Series 6000. *Page 12* And electronic-mail vendors are breaking their products into client and server pieces, offering users more choice. *Page 38* Wireless networking pioneers are discovering problems with interference *(Page 89)* and just keeping up with the terminology. *Page 51*

The mainframe leasing field is wrestling with plummeting residuals and lessor instability. The pending resignation of ICC's president will only further confuse things. *Page 1* And why isn't IBM paying more attention to low-end and midrange mainframe customers who need a place to go, Johanna Ambrosio asks. *Page 63*

Major groupware vendors are planning to add document management features to their products, but they don't agree on how to do it. *Page 1* It took a while, but IBM finally details plans for a client/server ImagePlus. Most of the pieces should be delivered next year. *Page 63*

Computer-based training is drawing new attention as business changes raise retraining pressure. But a lot of IS departments don't work well enough with the human resources organizations that coordinate skills development. *Page 81*

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Excel upgrade adds agents

By Michael Vizard
REDMOND, WASH.

Microsoft Corp. plans to deliver in December an upgrade of its Excel spreadsheet that will include agents that automate tasks and significantly improve support for three-dimensional analysis.

But whether Excel 5.0 will be able to thwart Lotus Development Corp.'s attempt to challenge Microsoft's dominance in the Windows spreadsheet arena with 1-2-3 Version 4.01 for Windows remains to be seen. Excel will also attempt to deflect Borland International, Inc.'s bid to gain market share with a $50 offer for Quattro Pro 5.0.

The offerings from the three companies appear to have strengths in different areas, so the determining factor may come down to a combination of installed base pull and ease of use.

In fact, industry analysts suggested that individual features are no longer as important as technology additions designed to simplify the use of a given spreadsheet. They also predicted that vendors will be more likely to focus on bundling ready-made application templates into their spreadsheets to enhance user productivity.

For example, Microsoft is expected to use the version of Visual Basic currently deployed in Excel to create application templates for vertical markets.

Vendors "have to provide capabilities beyond just macros. They won't do it immediately, but it is the next logical step," said Krystyna Filistowicz, an industry analyst at Dataquest, Inc. in San Jose, Calif.

That is because the features war is winding down, said Daniel Gasteiger, editor of the "Spreadsheet Consultant" newsletter in Cambridge, Mass. "The battle will now be fought along the lines of instant productivity."

Short term, however, spreadsheet vendors are focused on agents that automate previously complicated tasks.

In Excel 5.0 these agents take the form of tools such as "Tip Wizards," which advise users on how to better perform a repetitive task; an AutoFilter capability that provides a one-step method for browsing through a list of worksheet data; and automatic subtotals for performing calculations. Also included is the ability to more easily update a chart.

How spreadsheets stack up

Excel	•Tip Wizard	•Pivot	•Experts
Quattro Pro	•Easy and Fast	•Intelligent charting	•None
1-2-3 for Windows	•Auto Filter	•Data Query Assistant	•Table query
1-2-3 for Windows multimedia extension	•Pivot tables	•3-D support	•Data Modeling Desktop
Windows solutions	•Scenario Manager	•Version Manager	•Scenario Manager with version control
Basic suite	•Workspace tool bar	•Floating Together Smart Icons	•Speed bar

In contrast, Borland has already deployed agents, called "experts," to automate tasks in Quattro Pro, and Lotus is evaluating its agent technology strategy.

While making spreadsheets easier to use as part of a long-term effort to bundle in ready-made applications is a major focus of the Big 3 spreadsheet providers, the features war is not entirely over.

For example, in Excel 5.0, Microsoft has moved to improve Excel's 3-D analysis capability, an area in which Lotus and Borland have reportedly excelled.

"Microsoft is becoming a lot more competitive in the 3-D arena. Historically, they've been a big loser here because they had a horrible 3-D implementation," Gasteiger said.

To address this issue, Microsoft has added PivotTables, which allow users to analyze data across multiple worksheets simply by dragging and dropping on any range of data. That feature has been well-received by Excel beta users [CW, Oct. 4].

Users loyal to Lotus

But 1-2-3 users maintain that Lotus still has a better 3-D implementation.

"We think that 1-2-3 is a true 3-D spreadsheet, while the workbooks in Excel are what I call a pseudo 3-D implementation based on linking workbooks," said Stacy Kenworthy, technical director at the executive planning services division of Alexander & Alexander, Inc., a consulting firm in Atlanta.

However, while Microsoft has an advantage with Visual Basic, Application Edition, Lotus still has a compelling suite strategy [CW, Oct. 4].

"Lotus' products looked like they were designed together, whereas Office looks like applications that were bundled together," Gasteiger said.

Meanwhile, the company most likely to be hurt by Microsoft's assault in the spreadsheet arena is Borland. "If anybody is in a bad spot, it's Borland. They're a scrappy company that does great stuff, but I haven't heard of people moving to Quattro Pro en masse," Gasteiger said.

"And I don't believe that an alliance with WordPerfect is going to prove to be a compelling suite strategy," he added.

Nevertheless, Borland's spreadsheet technology continues to be well-received by its installed base, and the company has made significant strides in terms of sharing data across applications using its Object Exchange facility.

Unix brand deal approved

By Jean S. Bozman

After weeks of negotiation with Common Open Software Environment (COSE) members and others, Novell, Inc. and X/Open Co. are expected to announce an agreement today that will confer Novell's "Unix" trademark on X/Open. The agreement will allow X/Open to certify industry-standard Unix operating systems based on a common set of X/Open application programming interfaces (API).

Both parties confirmed last week that they will schedule an international videoconference to announce that a unified Unix will be built on X/Open's Spec 1170, a common set of 1,170 APIs unveiled last month [CW, Sept. 6].

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The Spec 1170 standard will become the single specification that vendors can enhance in their own Unix implementations, Novell said.

"The reality is that we are passing over to X/Open the trademark, and that trademark is going to become the name for compliance with Spec 1170," explained Larry Lytle, a spokesman for Novell's Unix Systems Group. As the APIs change over time, the process will be managed and administered by X/Open. Vendors will still be required to prove their compliance with test suites. "We [at Novell] will roll out technology to keep on track with that, as will other vendors," he added.

The delay in X/Open's announcement that it will "brand" Unix — expected at September's Unix Expo in New York — allowed Novell time to negotiate with Unix rivals Sun Microsystems, Inc. and The Santa Cruz Operation.

The transfer of the Unix trademark from Novell to X/Open will take place immediately, said Don McGovern, vice president of strategic relations and business development at Novell, who worked on the X/Open agreement. "X/Open will own it," he said. "They will be the only entity in the world that can sublicense the Unix trademark."

Vendors will have the option of calling their operating system "Unix" instead of a vendor-specific name — such as IBM's AIX or Hewlett-Packard Co.'s HP/UX — if they license the X/Open Unix trademark, Lytle said. Novell will continue to sell its Unix System Group's System V operating system source code likely under the name of UnixWare, which is a Novell-specific implementation of the Spec 1170 APIs, Lytle said.

X/Open's significance

Some analysts said X/Open's Spec 1170 APIs are far more significant than any branding of Novell's Unix trademark could be.

"If the API stuff holds together, that's the most important piece, along with IBM, HP and Sun agreeing to go along with it. The rubber meets the road when these guys ship an operating system that really observes all these APIs," said Neal Hill, a Unix analyst at Forrester Research, Inc. in Cambridge, Mass.

Large user sites may find that X/Open's branding will help with volume purchases, said Jerry L. Johnson, standards analyst at the state of Texas' Department of Information Resources in Austin. Listing X/Open's Spec 1170 as a requirement on bids for the state's 250 agencies will help to ensure compatibility, Johnson said.

Retraction

On July 26, *Computerworld* published an In Depth article titled "Beyond decision support." Written by the staff at Codd and Date, Inc., the article proposed 12 rules by which users could evaluate analytical processing tools. Included in the article was a chart furnished by the Codd group at *Computerworld*'s request, listing the products of five vendors and their degree of compliance with Codd's 12 rules.

At the time the article was prepared, the *Computerworld* staff did not know that it was part of a white paper paid for by Arbor Software, Inc. Arbor's product, Essbase, scored a perfect 12 out of 12 in compliance with Codd's rules in our chart. By contrast, no other vendor scored better than half that.

Computerworld has a long-standing policy not to use data culled from research underwritten by a single vendor and should not have published the chart.

In addition, the Codd group assured *Computerworld* that the information on the other vendors was obtained directly from company spokesmen. After Pilot Software objected to the data published on its product and insisted that it had never been contacted by the Codd group, *Computerworld* asked the Codd group about this discrepancy. After several weeks of trying unsuccessfully to determine with whom the Codd group had spoken, we have no reason to believe that Pilot was contacted.

We therefore assume the information supplied to us about Pilot and possibly about the other vendors listed in the chart may be flawed and should be disregarded, as should the entire chart.

— Bill Laberis, editor in chief

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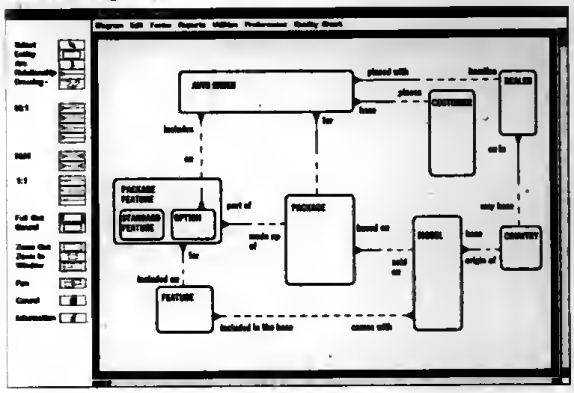

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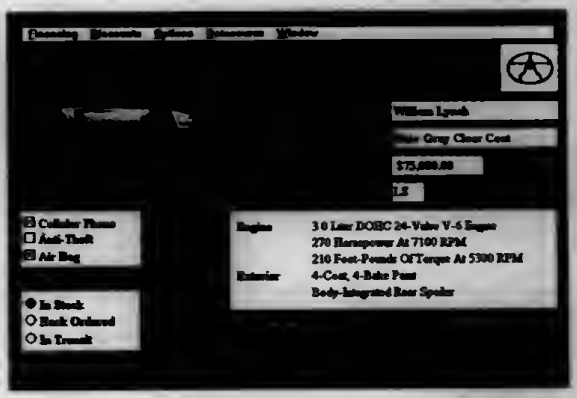

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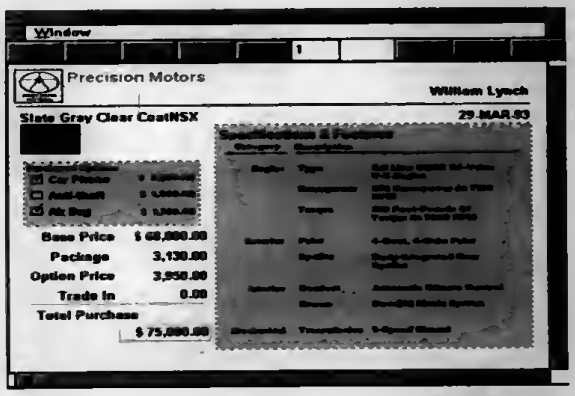

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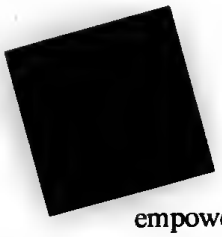

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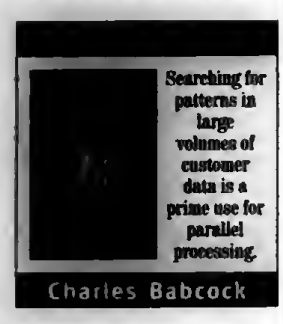
Parallel processing seeks business role

Parallel processing has had little impact on corporate information systems, but even so, there are good reasons for IS executives to keep an eye on developments in the field.

Technology advances keep hinting at the prospect that one day parallel processing will emerge as a replacement for the mainframe, a cheap form of concentrated power. This won't happen tomorrow. Parallel processors are expensive, and when business tasks are only somewhat able to take advantage of them, the expense of a processor tends to paralyze the chief financial officer, and old-fashioned sequential processing has to fill the bill.

Nevertheless, there is a distinct possibility that the nature of the business challenge is changing and taking on a greater degree of parallelization.

As John Mucci, vice president of business supercomputing at Thinking Machines, notes, businesses with millions of customers are storing data on those customers faster than they can figure out what to do with it. The introduction of point-of-sale computers in department stores, automobile showrooms and clothing stores is supplying a wealth of information about buying patterns, if the businesses can find a way to analyze it.



Searching for patterns in large volumes of customer data is a prime use for parallel processing.

Charles Babcock

Because pattern analysis involves common sets of data, frequently in multiple databases, it lends itself to a lengthy parallel processing inquiry that would take days or weeks to run, even on an IBM mainframe.

Epsilon Data Management in Burlington, Mass., a subsidiary of American Express, has addressed this task. Epsilon has written pattern-seeking software that can import data from standard mainframe databases and process it in a parallel system.

One firm that acknowledges using Epsilon services is Lotus. I am not privy to how Lotus makes use of pattern-seeking, but it seems to me that a company with millions of 1-2-3 spreadsheet customers would want to know which ones were buying Notes or CC:Mail and what buying patterns the purchasers of the broadest part of the product line have in common.

In January 1992, Epsilon purchased a 64-processor Thinking Machines CM-5 and used it to develop a system to work with American Express' IBM mainframes in its Phoenix data center.

Gartner Group researchers and authorities in the supercomputing field have followed this deployment and concluded that American Express wanted the capability to conduct ad hoc queries against its huge databases to see what customer information lay hidden in them.

Although the exact nature of these queries isn't known, the researchers believe American Express wanted to run what-if simulations against customer data to try to predict trends.

In a more immediate sense, it wanted to comb its data to see if it could identify the 2% of customers most likely to drop their American Express credit cards within a few months. By identifying this group, it could sort out those it wished to keep and launch special appeals their way in a direct attempt to retain them.

Once the value of such parallel processing applications is revealed, many businesses are likely to think of ways they can mine and use the information in their own databases, creating a greater need for parallel processor skills.

Parallel processors are also likely to decrease in price as they take advantage of the many mass-produced parts now on the market. A Thinking Machines CM-5 already uses three: SPARC logic chips, IBM 3.5-in. disk drives and standard 4M- and 16M-bit RAMs.

So at some point in the foreseeable future, parallel processing is likely to appear on the list of resources IS must manage and use.

Babcock is *Computerworld*'s technical editor. His MCI Mail address is 575-2737.

Outsourcing gains energy

Freeport, ISSC resize pact as host dependency declines

By Mark Halper
NEW ORLEANS

In a drastic switch of price mechanisms from one based on CPU cycles to one that measures labor, Integrated Systems Solutions Corp. (ISSC) and its client Freeport-McMoRan, Inc. last week reworked their outsourcing contract to help Freeport migrate to a Hewlett-Packard Co. Unix platform.

Starting in January, ISSC and Freeport will replace a 10-year hybrid mainframe/client deal, valued at an estimated $100 million, with a full client/server contract over five years. The revised contract will represent "substantial cost reductions" over the current mainframe arrangement at headquarters, said Mike Arnold, chief information officer at the New Orleans mining and energy firm.

Role switch

The transfer of Freeport McMoRan's processing from an ISSC data center in Lexington, Ky., to client/server systems in Freeport's New Orleans home office entails the assignment of 30 ISSC staffers or subcontractors with the following skill sets

[illegible]	1
Network manager	1
[illegible]	1
PC/LAN support	7
Data center operators	20

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- System administration

Source: Freeport McMoRan, Inc.

An ISSC spokesman characterized the new deal as "labor-oriented" and said the two parties lowered its value through changes in terms as well as duration. Neither Arnold nor the spokesman would state the new price.

The new contract will invoke charges based on ISSC labor fees for operating Freeport's incoming HP 9000 Model 890 as well as an Digital Equipment Corp. VAX 4300 that Freeport has been running on its own. In addition, Freeport will pay ISSC labor for PC and LAN support — which ISSC may subcontract to Freeport's current LAN support provider, Computerland Corp. — and database administration and network management.

In shifting to a labor formula, Freeport and ISSC are providing a solution to an outsourcing puzzle: How do outsourcers accustomed to charging for processing units work out equitable pricing schemes in a client/server world where their efforts are less processing-intensive and more service-oriented [CW, Aug. 2]?

Arnold noted that because "there was no model out there," devising a new pricing scheme was difficult. "We spent some time with ISSC management assessing alternative ways we could structure this agreement that would meet variables if we grow or shrink, and also give an element of predictability to them," Arnold recalled.

Although ISSC has worked out a new price formula at Freeport, there is no guarantee that it has developed a stencil for other client/server deals.

"We're not prepared at this time to make any offical comments on our pricing strategy," the spokesman said.

Compared with the relatively "straightforward" process of measuring glass house performance, quantifying distributed computing is "a bigger target because you have to look for hidden costs of support," noted Len Bergstrom, president of Real Decisions Corp., a Darien, Conn., consulting company.

According to Arnold, Freeport negotiated a fee for "transition services," in which the company pays ISSC for mainframe operations it continues to provide until Freeport completes its move to client/server computing in July 1994.

Freeport accelerated its client/server plans last January after it gave up control of its mainframe-dependent fertilizer subsidiary, Agrico Chemical Co., to a joint venture with International Minerals Corp. in Chicago.

Wal-Mart CIO to head new international unit

By Thomas Hoffman
BENTONVILLE, ARK.

Bobby L. Martin, whose nine-year reign as executive vice president and chief information officer at Wal-Mart Stores, Inc. was highlighted by his clever orchestration of technology deployment, was rewarded with a recent promotion to president and chief executive officer of Wal-Mart International, a newly formed division.

Martin will charter the $55 billion retailer's expansion overseas, including ventures into Puerto Rico and Mexico. Martin was succeeded by Randall Mott, who has assumed the mantle of vice president and CIO, up from his former position of vice president of systems development.

Under Martin, the retailer was among the first to adopt Unix across its enterprise, implement massively parallel databases and use satellite communications to link each store to headquarters.

Martin's promotion outside of the glass house is still rare among CIOs, though notable exceptions include Arthur F. Ryan, president and chief operating officer at The Chase Manhattan Bank NA, and Eugene B. Shanks, president of Bankers Trust Co., said Joseph Ziskin, senior manager at the center for information technology and strategy at Ernst & Young in Boston.

"You don't see too many CIOs moving in that direction, but a lot of it has to do with the company's view of technology and what has been accomplished there," Ziskin said.

Ziskin praised Wal-Mart for its visionary approach and for the business acumen of its information systems staff, whom he said he regards as retailers first and technologists second.

Martin, who came to Wal-Mart in 1982 after a stint at Dillard's Department Stores, Inc. in Little Rock, Ark., said Wal-Mart International will focus first on expansion opportunities in Mexico.

IBM attacks backlog

CONTINUED FROM PAGE 1

dors such as Compaq Computer Corp. have long produced special configurations for a few extremely large customers, they are only now trying to make this service more generally available. The PC Co. appears poised to make up for its tardy foray into build-to-order.

Step right up! Name your configuration!

Build-to-order means users specify exactly the configuration and software they want on their machine, rather than selecting from a specific set of choices offered by the company. "It's the difference between fast food and your own private chef," said Jeffrey Henning, an analyst at BIS Strategic Decisions in Norwell, Mass.

The impact will be felt immediately by smaller customers with specific requirements. It is unclear when large customers will benefit from the program, as IBM officials said they had not set a date for rolling the program out to large customers.

One large user said the move was an encouraging sign from the PC Co.

"While they do have a certain procurement problem, given where the PC Co. has been and where it is now, it's pretty amazing how they've turned things around," said Bob Holmes, computer technology research analyst at Southern California Gas Co. in Los Angeles.

Ready to go

Ted DellaVecchia, manager of information technology for the PC Co.'s customer fulfillment operations, said the PC Co. now has in place "the central nervous system to what we'll build upon in the future."

DellaVecchia said IBM is working on an electronic data interchange interface to its suppliers and has reached the stage where it has designed its system and is working to qualify its suppliers.

He also said the PC Co. is studying what impact a broad build-to-order strategy would have on various aspects of its business, including the sales force, manufacturing and financial performance. When these impacts are figured in, the company will roll out the broader strategy, but until then, "we haven't been given a date to shoot for," he said.

Conservatism faulted

Analysts said overly conservative unit projections for 1993 and inflexible, long-term contracts with components suppliers may have left the PC Co. unable to easily respond to increased user demands.

"They took a relatively conservative approach to their manufacturing capacity right from the start of the PC Co., and it is coming back to haunt them time and again," said Richard Zwetchkenbaum, research manager for PC hardware at International Data Corp. in Framingham, Mass. "So, naturally, this would have an impact on their build-to-order business."

When it launched its first products last fall, the PC Co. determined that its business would not increase by even 50%, despite a miserable 1992. This was too conservative for its own good, Zwetchkenbaum said.

"If they were more entrepreneurial and had a better sense of the market, they could have secured a larger opportunity," he said.

Meanwhile, the PC Co. Americas announced internally that Barry Eveland has been named vice president of fulfillment, Claflin said. Claflin said part of Eveland's responsibility will be to accelerate a build-to-order strategy for the PC Co.

"We are going to develop competency at building and shipping what customers want . . . and we are focusing on our total cycle time," Claflin said. "[Eveland's] measure of success is getting [product] to customers when they want it, where they want it and how they want it."

To keep some PC Co. customers happy, things will have to stay the same.

"We still like it that we can get the finite models — it's easier for ordering," said Bruce I. Linker, vice president of information services at a large financial services company.

Linker said his company had opted not to purchase machines from NCR Corp. in part because NCR configures PCs on a strictly build-to-order basis.

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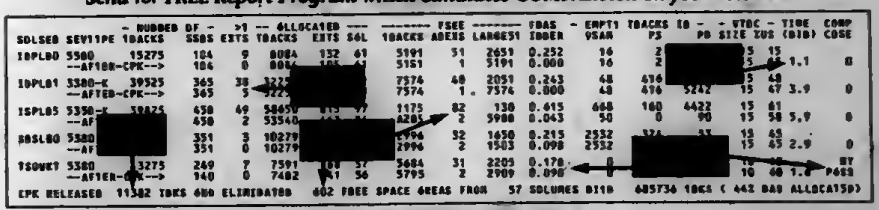

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News Shorts

House to examine competitiveness

The House Subcommittee on Economic and Commercial Law has scheduled a public hearing Wednesday looking into competitive practices in the computer industry [CW, Oct. 4]. While the purpose of the hearing is to discuss a broad range of market segments, the subcommittee will pay particular note to the operating systems market. The subcommittee is doing some "field research to see if it should do some further meddling" involving the competition among various operating system vendors, a source familiar with the proceedings said. Representing **Microsoft Corp.** will be William Neukom, vice president of law and corporate affairs. Ray Noorda, **Novell, Inc.**'s chairman, was scheduled to appear, but a company spokeswoman said he would not. Appearing at the hearing will be executives from **Dell Computer Corp.** and **Cyrix, Inc.**

Dell recalls subnotebooks

Dell suffered another setback in the notebook market, when late last week it recalled 17,000 of its 320SLi and 325SLi subnotebooks to replace a capacitor that could crack, causing an overheating problem. Dell said three systems had been returned because of the overheating problem. The company was unable to replicate the problem in its labs, but decided to recall the models anyway. Dell said it expected the recall to cost between $1.5 million and $2 million. Customers can call (800) 847-4171 to arrange for repairs.

Ami Pro price breaks from Lotus

Looking to bolster its share in the word processing market, **Lotus Development Corp.** is allowing sites to upgrade 25% of their installed base — up to 50 users — to Ami Pro 3.01 at no charge through the end of this month. Lotus has also launched a Smart Buy bundle, which includes Ami Pro, Intuit, Inc.'s Quicken 3.0 for Windows and a coupon for a free copy of ChipSoft, Inc.'s Turbo Tax, priced at $495. A competitive upgrade version of this deal is priced at $129.

Thrifty-ness pays off for ISSC

Los Angeles-based retail drug store chain Thrifty Corp. has signed a deal to outsource its information systems to IBM's **Integrated Systems Solutions Corp.** (ISSC). The 10-year, $100 million agreement calls for ISSC to migrate Thrifty from an aging IBM 3090 Model 500E to multiple AS/400 boxes. ISSC said the "vast majority" of Thrifty IS personnel will join ISSC.

NMS gets remote diagnostics

Novell last week announced NetWare Management System (NMS) Version 2.0, which supports Remote Monitoring-compatible LAN diagnostics on distributed NetWare Loadable Modules. A LANalyzer Agent sits on NetWare 3.x and 4.x servers, collects statistics and can then report them to a central NMS Windows console. LANalyzer Agent is priced at $1,495 for a single-interface version and is available now. NMS 2.0 is priced at $2,495 and is available now.

SHORT TAKES The **SQL Access Group**, which sets standards for accessing data in relational databases, elected a new chairman. Jon Deutsch, a technical director at **Information Builders, Inc.**, replaced **Digital Equipment Corp.** engineer Jeff Balboni as head of SQL Access. . . .The networking community got a major boost toward worldwide inter-LAN connectivity last week when long-distance carrier **WilTel** extended its frame-relay service to Europe — to London and Frankfurt and eventually to Tokyo.

More news shorts, *page 16*

Digital to launch groupware effort

By Craig Stedman
MAYNARD, MASS

Digital Equipment Corp. this week will introduce a shrink-wrapped groupware package positioned as underlying software for building applications that will incorporate mail, work-flow, document management and other functions.

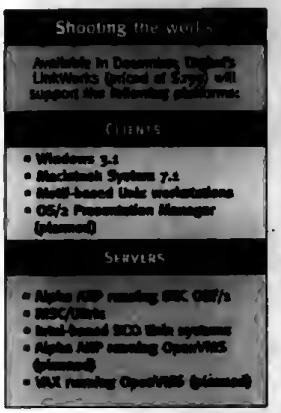
The object-oriented LinkWorks package will be the centerpiece of the wide-ranging rollout aimed at shining up Digital's image as an open client/server vendor.

LinkWorks, developed for Digital by an Austrian firm, has been sold since early 1992 by Digital's European services organization under the name Objectworks. One of six "software frameworks" that Digital is now emphasizing, LinkWorks is being marketed as a tool for integrating various applications across workgroups in an attempt to differentiate it from Lotus Development Corp.'s Notes.

Ann Palermo, an analyst at International Data Corp. in Framingham, Mass., agreed that LinkWorks and Notes "solve different types of problems." She added, however, that the two will probably compete for some purchases.

LinkWorks received good marks from Palermo and others, but some said an initial lack of shrink-wrapped support for non-Digital servers beyond Intel Corp.-based systems running The Santa Cruz Operation, Inc.'s SCO Unix could hurt sales in multivendor environments.

LinkWorks can be bought for use with IBM's and Hewlett-Packard Co.'s Unix systems, but only by contracting with the Digital Consulting unit to implement the software, Digital said. Packaged support is not available.



Wes Melling, an analyst at the Gartner Group, Inc. in Stamford, Conn., said that approach "is just absolutely contrary to the whole notion of open systems."

Bank of Montreal is implementing LinkWorks in its corporate banking department through a consulting deal with Digital and has had good results in reducing the time it takes to prepare credit applications, said Michael Frow, vice president of credit at the bank's U.S. operations in Chicago.

Frow noted, however, that multivendor support is "very necessary" for a product like LinkWorks. "You don't have time to go and reinvent all of your systems, especially when you've built things up on a departmental basis," he said.

Dilip Phadke, LinkWorks group marketing manager, said the LinkWorks group is trying to get service contracts priced so that users "don't pay a penalty because they're running it on HP," but that is still being negotiated with Digital Consulting.

Shrink-wrapped versions for IBM and HP may be added, "depending on how many we sell," Phadke said.

ICC woes

CONTINUED FROM PAGE 1

nex Research in Phoenix. "But they have been able to mask a great deal of the losses because they have been able to write a lot of new business to compensate."

ICC is not engaged in anything illegal, he added: "It's just that they and everyone else take advantage of an idiotic accounting system."

Rules from national accounting bodies stipulate when a company can put a financial transaction toward the bottom line vs. when it must write it off, but these rules are not always clear-cut. They get even hazier when, as in ICC's case, a parent company is involved through which some of these transactions flow.

Not everyone believes ICC is headed for a fall. Robert Shafer, an analyst at Meta Group, Inc. in Westport, Conn., said, "I don't think there are going to be any ugly surprises at ICC. These guys have been very conservative about what gets on their books."

Plus, he pointed out, ICC's financial track record has been very strong; with returns on investment in the 20% range vs. returns half that for most other lessors.

But there are other problems. Unlike most lessors, ICC handles mostly IBM gear, and this limits the unit's ability to grow its business. An ICC spokesman said more than 90% of its portfolio is IBM gear.

On Jan. 1, Kavetas will be succeeded by ICC Vice President James J. Forese. He, like Kavetas, could not be reached for comment.

Also, some clients said they perceive ICC as much less flexible and accommodating than competitors.

"Even if ICC is cheaper going in, it's less expensive in the long run to go with someone else," said John DeGroat, data center manager at Pier 1 Imports in Fort Worth, Texas. If DeGroat wants to change terms in the middle of the lease, for example, "the others will work with me and IBM won't."

Passed over?
Harry Kavetas, a 32-year IBMer, is seeking a job elsewhere because he was passed over for promotion to higher levels of the company, according to reports. In May, IBM chairman Louis Gerstner named Chrysler Corp. executive Jerome York as chief financial officer. Kavetas reports to York.

As a result, he has more than 20 contracts with El Camino Resources Ltd., a leasing concern in Northridge, Calif., and only two with ICC.

The ICC spokesman responded, "It's hard to deal in perceptions. We believe our lease management program and contract provide customers industry-leading flexibility." For example, he said, ICC will allow customers to upgrade a leased processor and have that box financed from any other, non-ICC source.

As a result — and given IBM Chairman Louis V. Gerstner's vow to do whatever is necessary to clean up IBM's bottom line — some would not be surprised to see something that would have been unheard of even a year ago: a dramatic reduction in the nature of its leasing program.

Some said they believe the cracks have already started forming in ICC's walls. The still-profitable unit has taken $35 million in residual value write-downs since the fourth quarter of 1991, and more than $60 million since 1988.

For the most recent quarter, ended June 30, ICC took a $12 million charge to reduce its work force by about 15%, or 170 people out of the 1,200 employed, through a voluntary program.

ICC revenue for the quarter was $50.6 million, down 4% compared with the second quarter of 1992. Net earnings were $108.8 million, down 1.8% from the year-earlier period.

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Microsoft to tackle Office support

By Michael Vizard
REDMOND, WASH.

Microsoft Corp. will detail later this month a custom installation option for Microsoft Office and set up a support line dedicated to the suite.

The single support line is intended to resolve technical problems associated with running applications in the suite, which includes the Word word processor, Excel spreadsheet, PowerPoint presentation graphics package and electronic-mail client software. A separate edition adds the Access database.

Meanwhile, Microsoft will give information systems managers the ability to create their own subset of Office for deployment across multiple desktops by stripping out some features from applications and automatically replicating that implementation across multiple desktops.

"We're trying to make it easy for IS managers not to have to get everything but the kitchen sink, so now they can customize the suite and replicate it across their site," said Mark Kroese, group product manager for Office.

Office already includes a minimum installation option. For example, the suite edition of Office that includes Access requires a minimum of 25M bytes of storage; a typical installation option requires about 45M to 50M bytes; and a maximum installation option for the full suite, which includes every piece of code associated with all the applications in the suite, requires 62M bytes.

Gain control

Kroese acknowledged that Microsoft, along with other suite providers, has been criticized for the growing physical requirements of suites. The custom option is an attempt to help resolve those issues by giving IS control over the application features it wishes to employ, he said.

"We don't think anybody will be loading the full installation suite [installation] anymore," Kroese said.

In addition to this effort, Microsoft is continuing its campaign to share modules across applications.

Delivery details

[illegible] Corp. will launch Office 4.0 [illegible], the actual delivery schedule for the major component applications is staggered. [illegible] Word 6.0 is due within 30 days, Excel 5.0 is due in [illegible], and PowerPoint 3.0 is due [illegible] 30 days [illegible]. People who purchase Microsoft Office 4.0 in the meantime will receive free upgrades to Excel and PowerPoint.

For instance, there is only one spell checker and one charting module that all the applications in the suite share, as opposed to each application's having its own implementation.

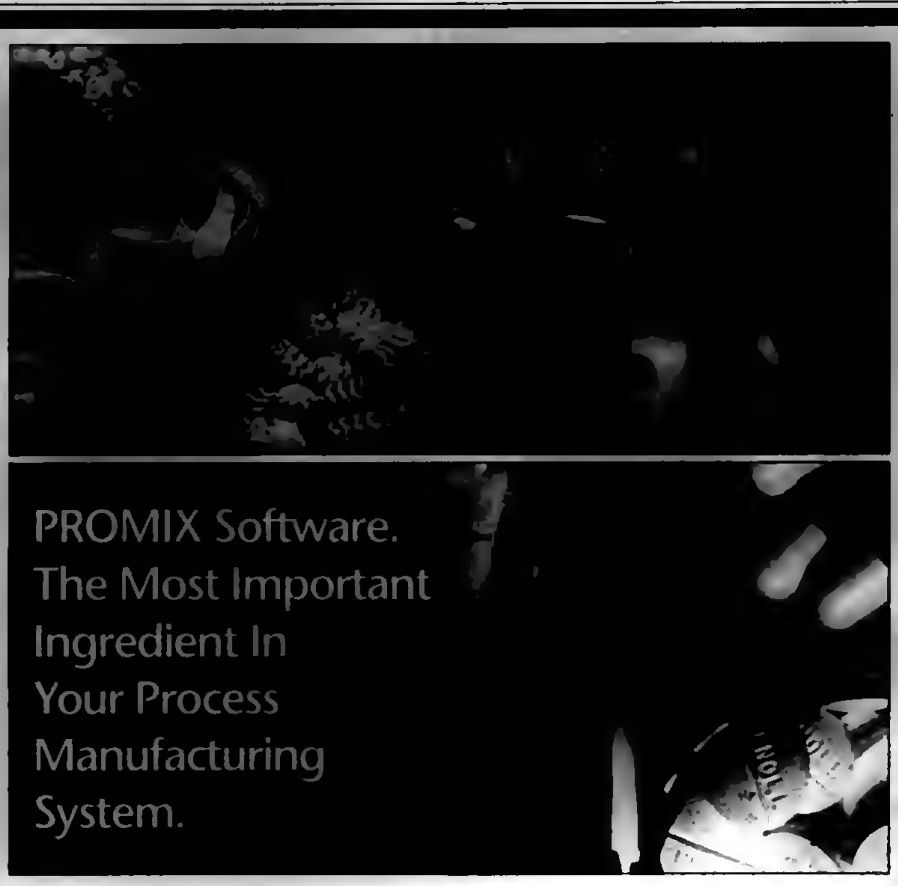
In terms of customization and shared code, Lotus Development Corp. is pursuing a similar course with its SmartSuite offering, which consists of the 1-2-3 spreadsheet, Ami Pro word processor, Freelance Graphics presentation manager, Approach database and Organizer personal information manager, a company spokesman said.

Like Office, SmartSuite has a maximum installation of 62M bytes and a minimum installation of 27M bytes.

In contrast, Borland International, Inc.'s suite offering, which consists of the Paradox database and Quattro Pro spreadsheet as well as WordPerfect Corp.'s namesake word processing software, requires a minimum of 8M bytes.

Despite the growing hardware requirements to support suites caused by the expanding list of features in applications, IS managers reported that the benefits of suites outweigh additional hardware costs.

"If you're not buying a suite today, you're crazy. The benefit of Windows is the ability to have integrated applications and to create complex documents," said Stacy Meyers, a staff analyst at South Florida Water Management, Inc. in West Palm Beach, Fla.



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Networth to push envelope with fast hubs

By Joanie M. Wexler
DALLAS

The game is officially afoot among smart hub vendors with next-generation architectures.

While SynOptics Communications, Inc. demonstrated its just-launched high-end System 5000 [CW, Oct. 4] on the Networld show floor, competitor Networth, Inc. ran a behind-the-scenes prototype of its counter-attack Series 6000, which it said it will announce in late November.

The hub, which will contain multiple high-speed LAN backplanes, including those that support emerging and sometimes controversial 100M bit/sec. Ethernet technology, will also add a high-end PC dubbed the Network Services Engine (NSE) to modules supported by the company's Series 4000 hub, company officials said.

Stepping up Networth said it will carry over communications NLMs announced at the show for the 4000's NAE to the 6000. The NLMs include Novell's multiprotocol routing scheme, NetWare for SAA LAN-to-host connectivity software and dial-up WAN connections.

The NSE is a more powerful and versatile take on the concept of Networth's NetWare Application Engine (NAE), a 486-based PC module for the 4000 that runs Novell, Inc. NetWare Loadable Modules only, Networth said.

The Series 6000's NSE PC is not a module but an integrated "drawer" that frees up two of the hub's slots for network connections, explained Terry Klein, vice president of sales. It is 486-based, like the NAE, but has heavy-duty performance, memory and storage enhancements (see box at left).

The enhancements make the PC-in-a-hub more attractive to Networth customer Darwin Collins, network administrator at the Dallas Area Rapid Transit (DART) authority. DART had no interest in the NAE because the module was not robust enough as a server for the authority's needs, Collins said.

Bundling benefits

However, Collins said he likes the idea of bundling a server and a T1 bridge with his hubs for several reasons: integrated server and hub management, security and space savings in wiring closets, redundant power supplies for servers because of resource-sharing with the hub and a savings on PC network interface cards, which are not necessary with the PC/hub combination.

The communications services supported in the NSE will not be limited to NetWare, which also appeals to DART. This is because political infighting at DART, which supports 800 networked users across 15 hubs and runs a mixed bag of mainframes, minicomputers, Unix workstations and LANs, has barred internetworking from "being dependent on the Novell group," he explained.

Currently, DART uses Alantec Corp. PowerHubs for heavy-duty routing among multiple Ethernet and Fiber Distributed Data Interface (FDDI) segments, but Collins said he would likely integrate this function at emerging smaller construction sites where the "$25,000 to $30,000" price tag of each Alantec box "would be impractical."

Third parties

Networth is looking at developing its own internetworking offerings to run in the NSE, such as bridging, routing and LAN switching, Klein said; however, those options will not be available at announcement time. In addition, products from third parties that have developed to XT/AT bus, Extended Industry Standard Architecture (EISA) and local bus PC standards would be candidates for the 6000, he said.

A goal for the Series 6000 will be to accommodate 10 separate 100M bit/sec. Ethernets, for which specifications are to be released immediately before the Networth announcement in November, said Michael Smith, Networth's director of product marketing.

Ethernet is a sore point with many industry observers, who are disappointed that the IEEE standards group caved in to two technology camps and is developing two separate standards.

The exact number of backplanes, including those supporting Asynchronous Transfer Mode and FDDI LANs, will depend on those specs, Smith said. All the new high-speed backplanes will be added on top of the one Token Ring and five Ethernet backplanes supported in the Series 4000 hub today, he said.

Remote user pleas reach vendor ears

By Joanie M. Wexler
DALLAS

Companies looking to extend the reach of their LANs to mobile, remote and telecommuting users found throngs of vendors eager to accommodate them on the Networld '93 show floor last week.

Remote connectivity products and corresponding gear for conserving wide-area network bandwidth use were heavily in evidence, a sign that organizations are feeling the networking impact of client/server and otherwise distributed computing.

Several firms pushed what are known as "remote access" wares, intended to tie far-flung users to their home LANs in a way that gives them access to the resources they would have if they were local. New vendors got into the act, including IBM with two offerings from separate business units [CW, Oct. 4]. Meanwhile, players such as Cayman Systems, Inc., at one time focused on niche user-populations, branched out to embrace the enterprise with support of multiple LAN protocols.

Most of the remote access products now support several protocols and PC types and include plans for Point-to-Point Protocol, software that allows interoperability among products across WAN links. These are laundry-list features required for enterprise networking, said Charlie Robbins, director of communications research at Aberdeen Group, a Boston consultancy.

But the other half of the equation is the WAN bandwidth that increasing numbers of remote connections are eating up. "Because line costs are still an issue, people want to get more out of their 56K bit/sec. circuits" rather than upgrading to faster and pricier links, Robbins said (see chart).

Indeed, users did seem reluctant to upgrade: First Madison Bank FSB was visiting Newport Systems Solutions, Inc.'s booth to check out the latest version of its T1 multiprotocol routing WAN compression software. This is because the bank is looking to get more out of its 56K link between LANs at its headquarters here and a regional site in Houston rather than upgrading, said Brian Kirkwood, a PC support analyst with network responsibility.

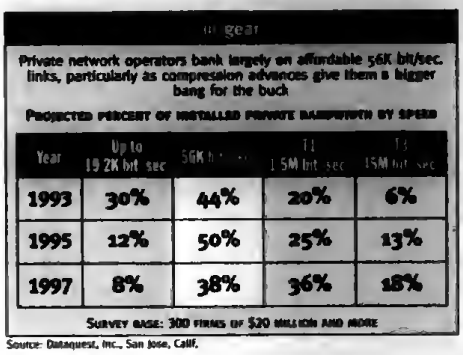
Show attendee Cynthia Mitchell, a software analyst at Argonne National Laboratory near Chicago who runs the government facility's four-city nationwide network, said she was looking at compression for speed and response-time gains to accommodate users accustomed to comparatively faster LANs.

Vendors such as Micom Communications Corp., Multi-Tech Systems, Inc., Newport Systems and Novell, Inc. sought to ease some of these WAN bandwidth limitations with sophisticated compression, filtering and protocol prioritization schemes they have built into their WAN interface products.

Debbie Greenhauw, network systems programmer at S&A Restaurant Corp. here, said she is already using Micom's compression-oriented NetRunner to cram host data, LAN, fax and voice traffic on a 56K link from here to Dayton, Ohio. She said she is saving about $20,000 per year compared with a configuration that uses separate voice lines.

Micom introduced a version of NetRunner at the show that extends this capability from point-to-point-only links to multipoint configurations.

Other evidence of bandwidth conservation was a new version of Retix's router software that supports Internet Protocol and Novell IPX protocols over public dial-up Integrated Services Digital Networks (ISDN). It uses a scheme that pares down chatty IPX traffic to keep ISDN traffic loads under the typical four-hour-a-day crossover point where it is more cost-effective to install private links.



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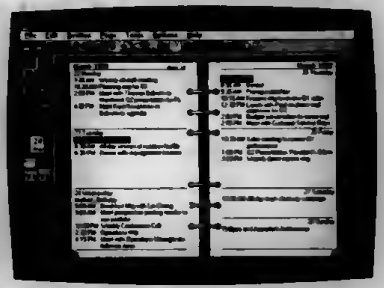

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Novell brings out AppWare development aids

But will they back up claims?

By Elisabeth Horwitt
DALLAS

Novell, Inc. officially released its AppWare client/server application development suite last week to a horde of corporate and third-party developers who said the product seems too good to be true — but who would very much like to become true believers.

Adding a big dollop of credibility to Novell's effort, Gupta Corp., WordPerfect Corp. and Borland International, Inc. announced AppWare products last week (see box).

Announced last spring, AppWare consists of the Visual AppBuilder graphical-based development front end; AppWare Loadable Modules (ALM) that are linked into a finished application; and the AppWare Foundation, which Novell claims will finally screen developers from the underlying incompatibilities and complexities of various client and network operating systems.

Crucial step

"Someone has to make that first step toward providing a way to develop applications with one set of [portable] tools that will work across different [client and server] platforms," said Gary Mazzaferro, manager of software development at Exabyte Corp.

Perhaps a more serious issue is whether Novell can deliver. "I will

be humbled" if Novell can meet its promises for multiclient support on AppWare Foundation next year, said Jim Allchin, Microsoft Corp.'s vice president of advanced systems. "Their list is amazing. It's hard to make a generic [application development environment] if you want to maintain the look and feel of each client."

AppWare is slated to support a wide variety of clients, including Microsoft's Windows and Windows NT; and services such as global directory from Novell, Banyan Systems, Inc. and potentially other vendors.

Infrastructure needed

AppWare looked "real hot" this time around as a way to boost a flagging client/server market, said Jamie Lewis, president of The Burton Group, a Salt Lake City consulting firm. "Networking sales are slowing because the applications are too hard to build; an infrastructure [across various client/server environments] is badly needed."

Microsoft is addressing this problem but only from the Windows side, Lewis said.

Joe Vaughan, a programmer and analyst at American Airlines, said he hoped AppWare would make it easier to write Windows applications that access NetWare services. Right now, the job requires dealing with two complex sets of application programming interfaces (API), he added.

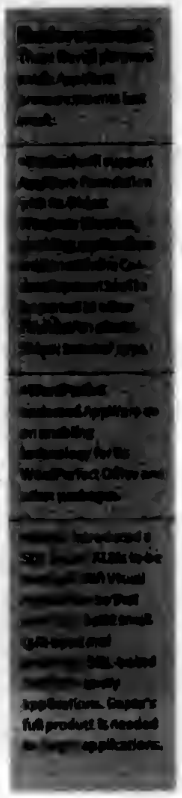
Of particular interest to several developers and users was Novell's announcement of a directory services ALM, which will support the NetWare 4.01 directory services and eventually Windows NT and Banyan services as well.

American Airlines is interested in incorporating the directory ALM into applications that would automatically route user requests to the right resource area — for example, when ordering cable from the physical plant, Vaughan said.

Furthermore, AppWare's client-independent application building blocks and object-oriented programming should allow users to "develop these new applications more efficiently and change forms more easily as groups and their needs change," Vaughan said.

AppWare will have ALMs for electronic mail; SQL querying of several types of databases, including Gupta's; Oracle Corp.'s imaging, calendaring, reporting and messaging on the Macintosh; document management; and multimedia in this month's shipment, Novell said.

Upcoming ALMs, which will roll out through May, will include reporting and messaging on Windows, network management, telephony and a Tuxedo transaction-processing monitor for critical database applications.



Tools for client/ server management unveiled en masse

By Elisabeth Horwitt
DALLAS

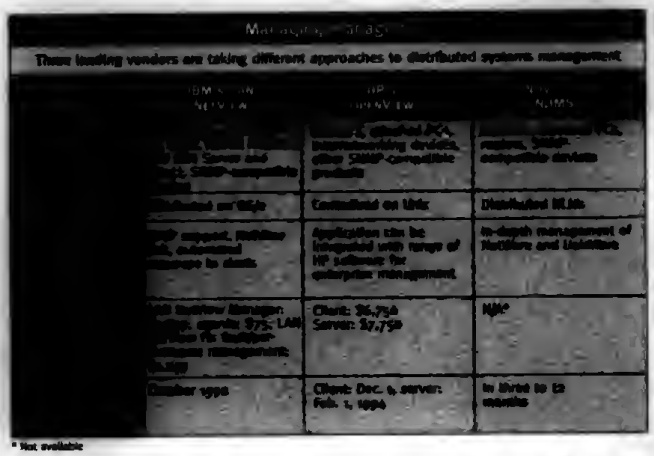
LAN administrators accustomed to begging for client/server systems management tools were bemused last week when IBM, Novell, Inc. and Hewlett-Packard Co. announced ways to manage a variety of clients and servers.

Such products are long overdue, said David Cearley, vice president of Meta Group, Inc. A recent study by the Westport, Conn., research firm found that 70% of the life cycle cost for client/server systems is in administration, managing and training.

Client/server fit

The job now facing many network administrators is figuring out how to fit client/server management within the network management hierarchy.

"I am confused by so many products out there. So far we have nothing, and we're worried about overkill or underkill," said Karen Jones, a computer specialist at the Naval Surface Warfare Center. Jones said she is looking for a NetWare management system to bolster her staff, which recently went from 10 to five people.



* Not available

Products announced last week, which tackle the client/server management dilemma from several angles, included the following:

- IBM announced LAN NetView, an OS/2-based distributed platform for managing Windows, OS/2 and DOS clients; IBM LAN Server 3.0; NetWare; DB2/2; database servers; as well as LAN and PC hardware.
- Novell announced NetWare Distributed Management Services (NDMS), a distributed version of its NMS platform that is said to manage NetWare servers, clients and the networks that connect them on NetWare Loadable Modules.

Air Canada is looking forward to the distributed version of NMS because "we don't want one central point" where all management data is collected, said John Shortall, LAN project architect for the airline.

- HP announced its OpenView Node Manager for NetWare, developed by partner Peregrine Systems, Inc. The software is said to enable the OpenView user to monitor performance statistics, including CPU and memory use, on a NetWare server; and to track software and hardware configurations on NetWare clients.

Both IBM and Novell said their respective systems were designed primarily to manage client/server systems and LANs, but they could also be used as enterprise management systems.

IBM is positioning LAN NetView both as a domain manager that reports up to NetView/6000 and NetView enterprise management systems; and also as a manager of "good-size enterprises" in its own right, a company spokesman said.

Enterprise, domain manager

Novell said NDMS will be able to act both as an enterprise manager and as a domain manager for a Unix-based enterprise management system but declined to say when or what systems it will support.

LAN administrators are in the midst of sorting all this out so they can make their buying decisions.

"We have looked at NMS, and it has a long way to go" as an enterprise management system, said Alain Pasche, head of LAN services for Union Bank of Switzerland. "Now we are trying to pull it all under an SNMP umbrella, such as SunNet Manager." The bank might use NMS for system and server management "but not for the internetwork."

Hermes to manage Microsoft only

By Elisabeth Horwitt
DALLAS

Microsoft Corp. made it clear last week that its Hermes framework, due out in the first half of next year, initially will manage just Microsoft systems, leaving "foreign systems" and networks that link clients and servers out in the cold.

Instead of embracing those foreign systems, Microsoft will leave it up to its partners, 23 of which were announced at a briefing here last week, to integrate Hermes with their own management of LANs, internetworking devices and other vendors' clients and network operating systems, Microsoft spokesmen said.

This differentiates Hermes, which is Microsoft's centralized desktop management software, from Novell, Inc.'s NetWare Distributed Management System (NDMS), also announced last week (see story page 14).

NetWare and more

NDMS, while primarily aimed at NetWare installations, will also have the scalability and functionality needed to manage other aspects of enterprise client/server installations, such as LANs and routers, Novell said. The firm said it plans to make NDMS available in three to 12 months.

In contrast, the Windows NT-based Hermes will provide consistent management environment services across NT, Windows, Windows for Workgroups and DOS systems, spokesmen said. Services will include configuration, problem management, software distribution and security management.

Like NDMS, Hermes will provide management on distributed nodes — in this case, NT servers — which will perform on systems within their local network domain. Statistics collected over time will be stored in local SQL databases that will be correlated across Hermes management nodes, Microsoft spokesmen said.

Microsoft is working with leading enterprise management vendors, such as Hewlett-Packard Co., Digital Equipment Corp. and Computer Associates International, Inc., to allow their enterprise management systems to manage Microsoft systems by accessing Hermes services.

Companies such as Visisoft, SynOptics Communications, Inc. and Tally Systems Corp. will integrate Hermes' management with their own specialized software. For example, Microcom, Inc.'s LANlord, which does real-time management of NetWare servers, will also manage Windows NT servers via Hermes, a Microcom spokesman said.

Union Bank of Switzerland "has been waiting desperately for Hermes" for its software metering and updating in particular, said Alain Pasche, head of LAN services for the Zurich bank.

However, the bank was disappointed with a prerelease version of Hermes, which apparently could not automatically distribute different software configurations to different workstations from an NT server, Pasche said. As a result, Pasche's group spent time developing its own desktop management software.

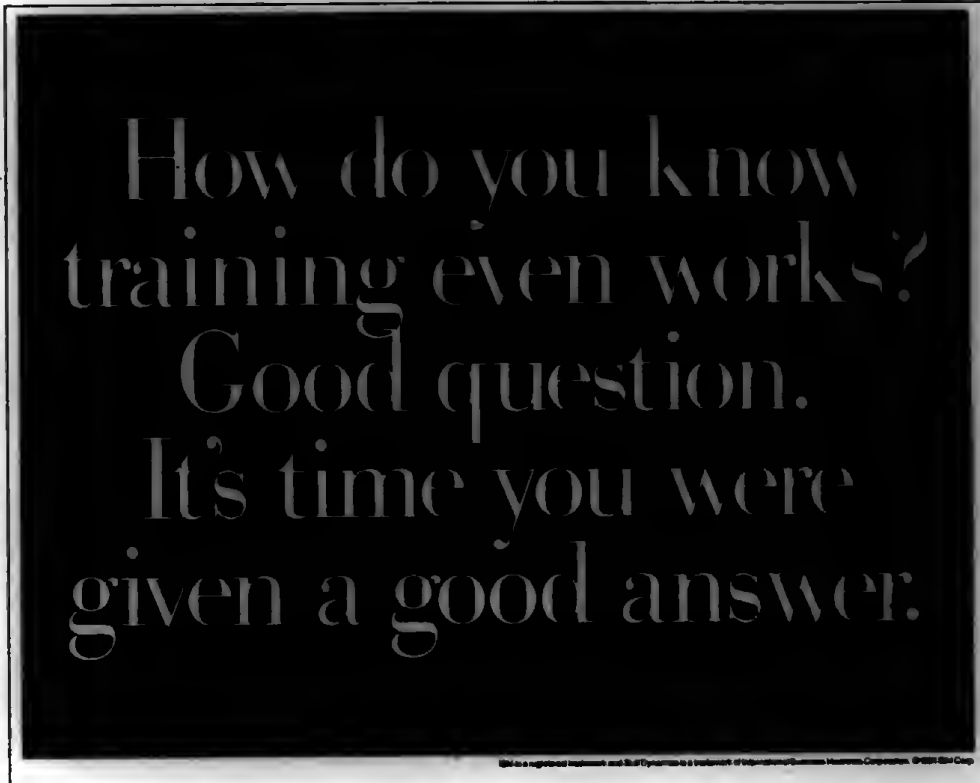
Vendors form support alliance

Fourteen major vendors last week pledged mutual technical support in the form of a Technical Support Alliance Network (TSANet) through which they will share information to help resolve multivendor support issues.

Announced at Networld '93, the alliance includes 3Com Corp., Lotus Development Corp., Apple Computer, Inc., Banyan Systems, Inc., Hewlett-Packard Co., IBM, Compaq Computer Corp., The Santa Cruz Operation, SynOptics Communications, Inc. and Novell, Inc.

"The definitive benefactor from the alliance is going to be the end user, who will see faster response times. And companies will start seeing the cost of support going down," promised Dennis Smeltzer, executive director of TSANet.

—Michael Vizard



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News Shorts

IBM to reveal client/server aids

IBM will announce tomorrow three client/server development tools. VisualAge, which helps developers create applications by combining objects onscreen, is the only one of the three available immediately. It comes in both individual and team versions. The other two packages — HighPoint, an applications generator that runs on both host and PC platforms, and ReDiscovery, which allows developers to make a PC object out of Cobol code on a mainframe — will be delivered within the next year or so.

Four dealers hit with piracy charges

Washington-based Business Software Alliance last week filed lawsuits against four PC dealers for allegedly loading customers' hard disks with copyrighted software (such as Windows) without licenses. The dealers sued for copyright infringement were LS Technology Corp. in Parsippany, N.J.; Micro Experts in Solon, Ohio; PC Importers in North Canton, Ohio; and Mayberry Systems in Belleville, Ill.

KnowledgeWare unwraps tools plans

KnowledgeWare, Inc. last week announced the company's licensing of R&O GmbH's Rochade repository as expected [CW, Sept. 13], as well as three products that extend the company's Application Development Workbench (ADW) to target high-end client/server development, company officials said. The ADW/Workgroup Coordinator offers concurrent access to multiuser ADW encyclopedias to synchronize data and to support workgroups in LAN-based environments. The ADW/Workgroup Manager, to ship in early 1994, will offer change management, security and impact analysis for multiple encyclopedias. Those multiple encyclopedias will then be able to be stored in the Rochade repository, officials said.

Faster Ethernet makes strides

Progress with full-duplex Ethernet switching was in evidence on the Networld '93 show floor last week: IBM, Compaq Computer Corp. and switch maker Kalpana, Inc. said they have successfully tested their gear running in harmony. The development was the first fruit of an interoperability consortium headed by hub vendor Cabletron Systems, Inc. and also announced last week. Compaq also said its NetFlex family of 32-bit Ethernet adapters will be upgradable to full duplex with a software driver change.

New TI chips

Texas Instruments, Inc. re-entered the microprocessor market last Friday, announcing the 486SXLC and 486SXL, eight 486SX-class chips built around a core developed by Cyrix Corp. TI is offering both 5V and 3.3V versions in four clock speeds: 20/40 MHz, 33 MHz, 25/50 MHz and 40 MHz. The new processors will come in two sizes, one for notebooks and the other for subnotebooks.

SHORT TAKES Digital Equipment Corp.'s storage business unit last week reduced prices by up to 34% on its end-user disk and tape drives.... CompuAdd Computer Corp. said it has reached an informal agreement with its creditors that could end its Chapter 11 protection as early as Nov. 4.... Forms software company Delrina Corp. in Toronto will make its debut in the communications market this week with the announcement of its Communications Suite. The software suite comprises $179 Windows-based fax/modem software that contains terminal emulation software for accessing proprietary IBM and Digital host computers and other features such as data compression and virus-checking.

Apple will sell Windows apps

CONTINUED FROM PAGE 1

small guided tour of some of the piece's most salient features. If a user decides he cannot live without a particular piece of software, he dials a toll-free number and charges the application to his credit card. He is then given a code to unlock and download the application onto his hard drive.

The disks will employ an encryption technique developed by Rainbow Technologies, Inc. Apple has devised a de-encryption algorithm that is specific to each CD so the secret code cannot be passed along.

Users can then negotiate a purchase price based on how many copies of the software their organizations will use.

November ship date

More than 10,000 Macintosh-based CDs are expected to ship in early November, with a similar Windows-specific Software Dispatch release slated for early next year, Apple officials said.

Because Apple is shipping a relatively small number of CDs, some analysts said they think that, at least initially, Software Dispatch is little more than a token gesture.

"They're trying to tell the Windows community that the Macintosh can coexist," said Lee Levitt, an analyst at International Data Corp. in Framingham, Mass.

But even a half-step toward cross-platform awareness was good news for users. "This is a great move for Apple because they are finally accepting the fact that every device on the desktop is not going to be a Mac," said Robert Anderson, a senior analyst at A. O. Smith Automotive Products Co. in Milwaukee. "We live in a cross-platform world. There's no getting around that."

Although Apple sometimes has a rocky relationship with its resellers, Schnell said Software Dispatch should not hurt sales at retail outlets such as CompUSA because the Cupertino, Calif., company is trying to include them in its plans.

But Levitt said he smells a rat. "I would say that resellers like CompUSA might be getting the short end of the stick," he said.

Some resellers are buying into the concept — to a degree.

A CD sampler service akin to Software Dispatch is scheduled to be offered this month by Apple resellers Multiple Zones International, Inc. and Instant Access International.

Their CD, however, will be limited to the Macintosh platform.

A good portion of Apple's early disks will be devoted to lesser-known firms such as Aladdin Systems, which produces the StuffIt data compression utility for Macintoshes, or Intuit, Inc.'s Quicken, a money management application for both Windows-based and Macintosh machines.

Big guns missing

However, some of the biggest guns in the Macintosh developer community — companies such as Microsoft and WordPerfect Corp. — will not be represented in the initial Software Dispatch release. Microsoft said it was unable to respond in time to meet Apple's initial deadline but hopes to be involved with future releases.

Analysts offered a warning about the efficiency.

"The big players are needed to pull through the smaller players," said Doug Kass, a principal analyst at The Viewpoint Group in Santa Cruz, Calif. "The typical user has confidence that if the big players are in there, the smaller players are OK. If they don't get the big players, the whole program might not make it."

The first issue will include its share of notables, however, including Adobe Systems, Inc., MacroMedia, Inc., Fractal Design Corp., Claris Corp. and Symantec Corp.

Document control

CONTINUED FROM PAGE 1

for it from our customers. We're trying to understand what the specific customer need is," said Mark Kroese, general product manager for Microsoft Office.

Short of an outright acquisition, Microsoft is expected to sign alliances with existing providers of document management systems — including SoftSolutions Technology Corp. in Orem, Utah, PC DOCs, Inc. in Tallahassee, Fla., and Saros Corp. in Bellevue, Wash. — in order to closely integrate its server technology with their document management system services.

This integration of services will be further enhanced by more tightly linking PC applications with document-oriented middleware services, according to Mike Kennewick, vice president of marketing at Saros.

Meanwhile, Lotus sources said the company intends to enhance the ability of its Notes offering to provide robust document management system services that other companies will take advantage of.

WordPerfect will announce a personal information manager this month that will include some document management capabilities. Later, this effort will be expanded to provide a full-blown document management system effort, a company spokesman said.

"There is a realization that work flow, text retrieval and document management are tools that will be needed on all desktops. The big vendors are seeing that these areas will generate a significant amount of revenue each year and that there is money to be made here," said Carl Frappaolo, executive vice president at the Delphi Consulting Group in Boston.

Using leverage

In general, Microsoft is expected to leverage existing document management system technology on top of Microsoft Office, while WordPerfect is expected to deliver a system that will leverage its namesake word processor and WordPerfect Office electronic-mail system.

Lotus, on the other hand, is expected to position Notes as a back-end server for third-party document management systems by including more sophisticated routing, rules and agents in the Notes server, sources said.

"There's a big split between loose document management systems and some of the sophisticated ones already out there. Notes has versioning, but it's nothing like the check-in, check-out capabilities in robust document management systems," said Brownell Chalstrom, president of Chalstrom Consulting, Inc. in Oakland, Calif.

"Our products focus on cross-application, while a WordPerfect offering is going to focus on WordPerfect documents," said Rhonda Shill, marketing manager for SoftSolutions.

"For us the biggest problem has been educating the market, so this may actually help us," Shill said.

However, Frappaolo noted that to be taken seriously in this market, the big PC companies will have to support applications from different vendors.

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Work-flow tools tap SQL databases, Notes

By Michael Vizard
ALAMEDA, CALIF.

After almost three years of development, Action Technologies, Inc. (ATI) last week delivered its suite of work-flow analysis and development tools for SQL databases from Sybase, Inc. and Microsoft Corp.

Support for other SQL databases is due in the first quarter of 1994, and a Lotus Development Corp. Notes-compatible version of ATI's ActionWorkflow System software is in beta testing, with delivery expected before the end of the year.

ATI provides four components in its ActionWorkflow System to help information systems managers redesign business processes. These include:

- ActionWorkflow Manager, which actually monitors and tracks each transaction made during a work-flow process.
- ActionWorkflow Analyst, a graphical tool for creating work-flow processes.
- ActionWorkflow Application Builder, an application generator that shields developers from working with products such as Microsoft's Visual Basic or the Notes macro language.
- A set of client libraries, which can be used to link third-party applications to the ATI system.

While the ATI system is said to provide some of the most sophisticated tools for re-engineering work flow, independent consultants note that adopting ATI requires businesses to philosophically adopt ATI's work-flow methodology.

"For a lot of companies this can prove to be a rather expensive adventure, costing tens of thousands of dollars," said Randal Zahora, president of Workgroup Productivity Corp., a consultancy in Oak Brook, Ill.

However, some companies willing to undertake the expense said the ATI software has provided substantial benefits.

For example, Bankers Trust Co. in New York has been using a noncommercial release of the ATI software running on top of Notes 2.1 in a customer service application that logs inquiries and forwards information to the appropriate decision-maker.

"People are still making the decisions, but when they do, action is automatic. Rather than just faxing information around, they are sending collections of data, including text and images," said Jeremy Keisman, the bank's vice president of global assets technology.

Combination approach

Other companies are taking a middle-of-the-road approach that combines the underlying ATI technology with a work-flow approach developed by Quality Decision Management, Inc. in North Andover, Mass.

For example, Synetics Corp., a consulting firm in Wakefield, Mass., is adopting Quality Decision's software to help track Notes projects across multiple customers. According to project manager David Greene, Synetics opted for Quality Decision because it provides a more flexible methodology on top of the ATI transaction tracking technology.

"It takes a lot of programming to exchange information between Notes databases in a work-flow model. Quality Decision simplifies this by funneling tasks into the appropriate Notes mailbox," Greene said.

Pricing for the ATI software, which runs on OS/2 servers and Windows clients, is $6,000 for the ActionWorkflow Manager, $1,495 for the ActionWorkflow Application Builder and $495 for the ActionWorkflow Analyst. The client libraries are available for $2,000, which is an unlimited-use license.

A Microsoft Windows NT implementation is due in the fourth quarter, with Unix support slated for the first quarter.

Staff writer Lynda Radosevich contributed to this report.

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ASK Group takes OpenRoad into object race

By Kim S. Nash
SAN FRANCISCO

In its first major object-oriented thrust, The ASK Group, Inc. last week unveiled an update to its 4-year-old ASK/Windows 4GL development tool set.

Although the move leapfrogs ASK over competitors such as Oracle Corp., the announcement is the latest from database vendors trying to stake claims in the object-oriented arena. Sybase, Inc., for example, outlined its object-oriented strategy in August, including plans to build an object-oriented repository and tools for multimedia applications [CW, Aug. 16].

However, ASK did break ground by promising to deliver versions of its tools for rival databases from Oracle and Sybase "before they have their own comparable tools out," a spokeswoman said. ASK plans to deliver the products during the next six to nine months, she said.

The tools are part of an overarching object-oriented plan dubbed OpenRoad, which ASK Chairman Pier Carlo Falotti outlined last week. The primary pieces of OpenRoad include the following:

▶ ASK/Windows 4GL Release 3.0, a fourth-generation language that previously required ASK's Ingres database but is said to work with Oracle, Sybase and other database management systems. Also, Release 3.0 will sport object-oriented capabilities, such as support for class libraries, ASK said.

▶ A model-based code generator designed to let users code business rules into software development for smoother change management.

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Details on two products, code-named Ruby and Amethyst and sketched out for user group attendees in May, were scant. Although Falotti did not provide features or ship schedules specific for those tools, they will be part of OpenRoad, a source close to the company confirmed. Still under development, Ruby is a graphical report writer, and Amethyst is a graphical user interface-based code generator. An official announcement is expected by mid-1994, the source said.

The new products "fulfill a lot of long-standing user requests," said Kitty Weaver, president of the North American Ingres User Association.

The waiting game

Association members have long wanted strong object-oriented utilities from ASK because such tools from independent software makers do not work well with the Ingres database, Weaver said.

Plus, fewer third-party tools exist for Ingres because the Ingres database lacks the market strength of Oracle or Sybase, she noted. Ingres ranked fourth in worldwide Unix relational database sales for 1992, with about 9% of a $2 billion market, according to research firm International Data Corp.

However, not all Ingres users were as eager, focused instead on other technologies. "Interest in object-oriented is not as high right now as [it is for] managing all our databases and client/server systems," said Jim Bullock, MIS development manager at Cellular One. The mobile phone company recently installed Ingres databases connecting three locations in upstate New York.

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E-mail breakup may give users more choices

Mix-and-match mail components will work if vendors provide support and ensure interoperability

By Lynda Radosevich

The crack-up of LAN-based electronic mail is under way, and that could mean more choice and more control for users.

Several recent announcements combined with strategy changes at vendors such as Lotus Development Corp., Microsoft Corp., Novell, Inc. and Apple Computer, Inc. will break LAN E-mail into client and server pieces that users can mix and match, regardless of vendor.

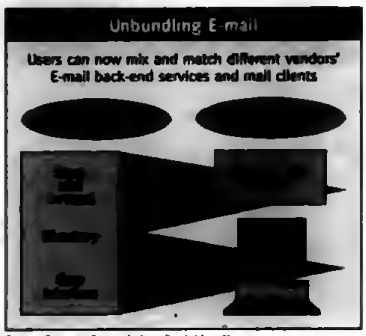
This will give information systems managers more choices for E-mail "back-end" services and let managers and end users purchase the client with the features they like best. It also deviates from the model currently used by E-mail market leaders Lotus' CC:Mail and Microsoft Mail.

For example, to use Lotus' or Microsoft's message, store or directory services, users must also purchase those companies' mail interfaces.

Feature frenzy

At a messaging forum two weeks ago, roughly 60 participants — including users from large organizations — said they want to purchase E-mail based on an application's features and not have to simultaneously choose all underlying features, said Nine Burns, president of the conference's hosting company Creative Networks, Inc. in Palo Alto, Calif.

But those users said they want to have a messaging infrastructure that will support more than messaging. First vendors must endorse standard application programming interfaces (API) for messaging applications such as calendaring, scheduling and work flow. And that is not necessarily going to happen. "If you talk to Microsoft, they support MAPI. Period. They are pushing their own solution and not cooperating," Burns said.



Source: Forrester Research, Inc., Cambridge, Mass.

In fact, users and analysts contacted last week had several reservations. Among them were whether vendors will agree to standards, provide multivendor support and ensure interoperability.

"I'm cynical about how well vendors that offer both pieces will actually support an open system," said Ray Pratt, an IS administrator at Buckbee Mears, a division of BMC Industries Inc. in Cortland, N.Y.

Among the developments enabling the separation of E-mail components is Microsoft's plan to include a fleshed out version of its Microsoft Application Programming Interface (MAPI) in Windows 4.0, which is expected to ship around mid-1994.

"Full MAPI will give other vendors the exact same abilities to the messaging back end as we have," said Tom Evslin, general manager of workgroup strategy marketing at Microsoft.

APIs fast approaching

Also, Lotus will ship a full set of APIs to CC:Mail some time after the "Sequoia" version of the CC:Mail server ships in the next 12 to 18 months, according to Larry Crume, vice president of Lotus' mobile computing division.

Those APIs will allow competitors to write competing mail clients that fully use CC:Mail. The upcoming Lotus Communications Server, a separate client/server messaging server due in 12 to 18 months, also will fully support competing clients, according to Lotus.

Other evidence supporting a move in this direction includes Apple's announcement last week of its Open Collaboration Environment (AOCE), which has a messaging component that will let other vendors' clients use Apple's messaging infrastructure [CW, Oct. 4]; and Novell's announcement last week that its Message Handling Service will directly support Microsoft Mail.

Mail notes

Vendors such as Novell and Hewlett-Packard Co. have a lead in this separate back-end/front-end market because their products already support a variety of vendors' clients. Neither, however, ranks highly in corporate E-mail market share.

As part of the AOCE announcement, Apple also outlined plans for PowerShare Collaboration Servers, which provide store-and-forward messaging services under AppleTalk network users. The servers will come with messaging software and APIs that let other vendors' client applications operate on top. Delivery is slated for early 1994, and pricing has not yet been set.

Fault-tolerant market

Stratus swings layoff ax to trim costs

By Craig Stedman
MARLBORO, MASS.

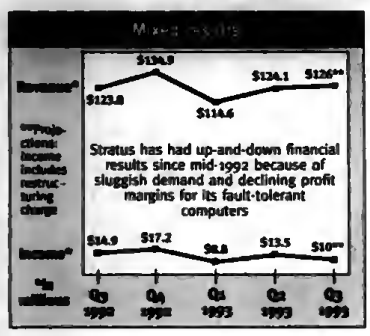
■ Stratus Computer, Inc. last week said it is laying off 160 employees, 6% of its work force. The layoffs come as Stratus experiences a decline in earnings due to lower revenue growth and profit margins on its fault-tolerant computers.

The company said it will take a $3.5 million charge in the just-finished third quarter to cover severance payments. That will further reduce profits for the period, which were already expected to be down from last year's third quarter (see chart).

80 lose jobs now

Stratus let 80 manufacturing and engineering workers go last week and said it would eliminate 80 more jobs by the end of the year. The reduction is the second in three months for Stratus, which cut 39 jobs in July as part of a manufacturing plant consolidation.

According to analysts, improving reliability of general-purpose hardware has reduced demand for the more expensive fault-tolerant systems sold by both Stratus and archrival Tandem Computers, Inc., which is in the midst of a major restructuring itself (see box).



Stratus is "having a tough time right now," said Richard Schreiber, president of ATB Associates, Inc., a Wellesley, Mass., consulting firm. "Their market segment is shifting on them and forcing them to drive their prices down, and margins are falling as a result."

Slow second half

Revenue in the first half was up 5% over 1992 levels, but Stratus has indicated that second-half business will be below earlier expectations. As a result, the company said, 1993 profits are likely to be "slightly" below 1992's $56.9 million.

That does not sit well with William Foster, Stratus president and chief executive officer. "We're a company that's always been focused on being very profitable," Foster said. With hardware prices falling, he added, Stratus is "trying to be more efficient."

The layoffs are "totally disconnected" from a program started earlier this year that targets software company acquisitions as part of an effort to diversify operations, Foster said. Stratus plans to spend up to $100 million on acquisitions, but Foster noted that it has $170 million on hand and only needs about $50 million to fund its current operations on an ongoing basis.

Foster said he is looking for revenue to increase 8% to 12% in 1994 as Unix shipments pick up and sales decline for Unix resellers IBM and Ing. C. Olivetti & Co. He insisted that Stratus' business remains "good" in comparison with other vendors.

William Milton Jr., a financial analyst at Brown Brothers Harriman in New York City, agreed. "Obviously their revenue growth has slowed, but they're in pretty good shape relative to others in the industry," including Tandem, Milton said. "Foster is a meticulous planner."

Rival restructures

Tandem is also in a downsizing mode because of sluggish revenue growth and declining profit margins for fault-tolerant computers

TANDEM

- 1,600 to 1,800 employees (15% of work force) to be let go by mid-1994
- 5% salary cut and benefit reductions imposed in July
- Replaced CEO of Ungermann-Bass subsidiary
- Replaced head of European operations
- Overseas facility consolidations being planned
- $453 million restructuring charge taken in quarter ended June 30

Stratus' CEO and President William Foster: *With hardware prices falling, 'Stratus is trying to be more efficient'*

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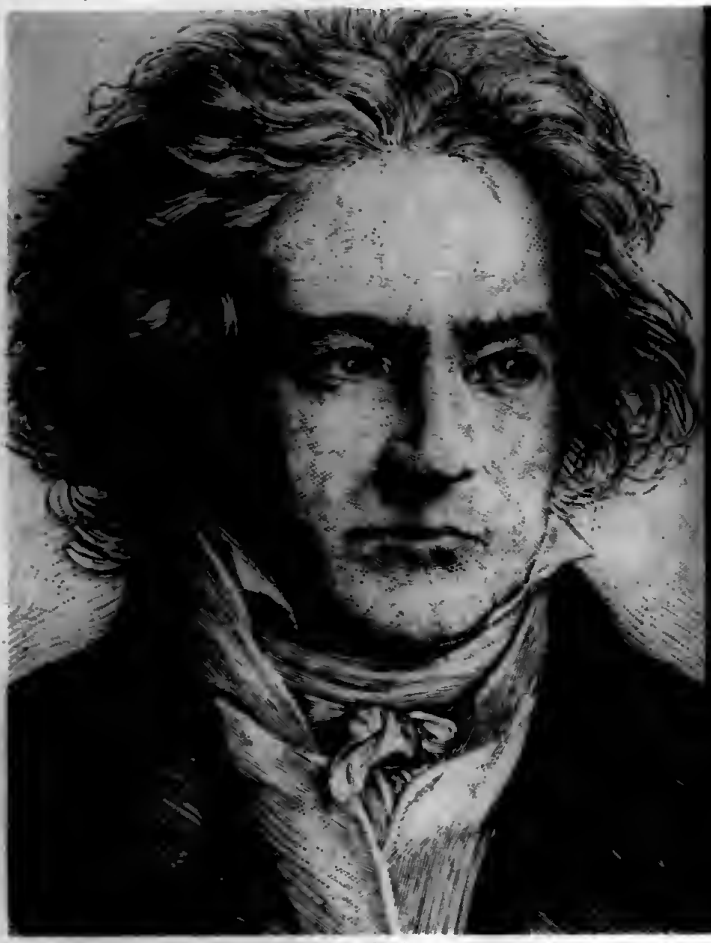

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C/S B.S.

For some time now I've used this space to strongly advocate the very slow and easy path to downsizing and client/server computing.

In addition, I've taken that message on the road, speaking at various user group meetings and at times causing the host vendor representatives to cringe as I related some emerging client/server disaster stories.

I also predicted (and certainly was not the first person to do so) that there would be a short-lived but definitive uptick in demand for mainframe MIPS. This would result from users coming to the stark realization that mission-critical computing on small, cheap hardware platforms is extraordinarily difficult at its best and suicidal at its worst.

Lately, when delivering this message in person, I notice a bit more smugness on the faces of many in the audience. They sort of sit back with arms folded across their chests, wryly smiling as if to say, "Yeah, I know what you're talking about. Got the scar tissue to prove it."

[redacted]

Afterward, in conversations over coffee, they find solace and comradery, if not commiseration, in one another. Either they've been through some downsizing project that panned out a whole lot less than planned or know of someone close to them who has.

Through it all, a new reality has quietly emerged. When was the last time you heard someone talk about the impending death of the mainframe and not get hooted off the dais? Can you recall any big-time client/server vendors announcing the unplugging of their big iron recently? And is it just me or does it appear that the time line for functional object-oriented database technology keeps on getting nudged further and further out?

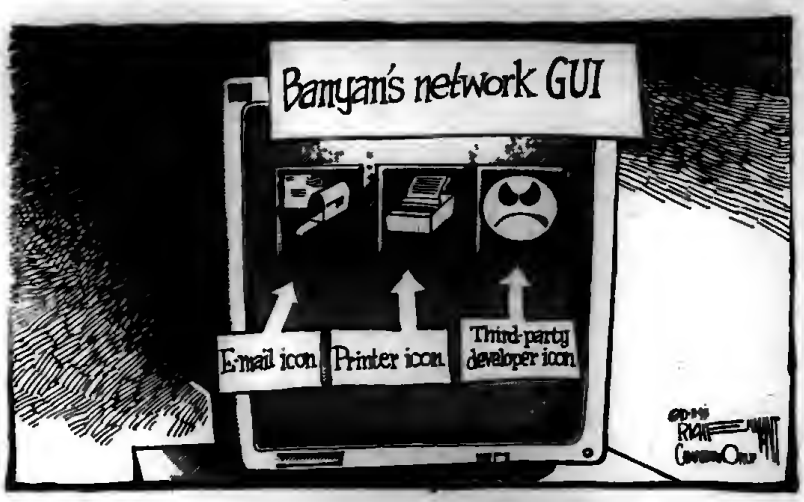
Users are finding all sorts of "surprises" in their client/server projects, the same way a toddler's diaper presents surprises to parents at inopportune times. Users who gushed at the early results of client/server pilot projects often find that the more full-blown implementations falter badly. Updates to larger hosts are chronically unreliable. Lacking the beauty of data orchestration built into a mainframe, client/server database performance is often poor by comparison.

Perhaps the worst part is that when the doo-doo hits the fan and things start to go wrong, it's almost impossible to get any of the umpteen vendors involved to accept responsibility. Often, the truth is that there's no way of knowing whose product is at fault, and it's just as difficult to know in advance how products will interact with one another in a multivendor environment.

Yes, client/server will happen. So will object programming, richer implementations of SQL databases and aggressive downsizing. And any users who refuse to stay current with the waves of change will be swamped by them. Only it seems users are shifting their expectations toward a new reality spawned by hard lessons that indicate there is no magic bullet in computing, not by a long shot.

Bill Laberis

Bill Laberis, *Editor in chief*



[redacted]

Losing data out the 'Windows'

After reading "Help, Windows is driving me nuts!," [CW, Sept. 13] I really had to give a little chuckle. I don't know why this article should be such a surprise to the public. I am not on any kind of network but run Windows 3.1 on my 486 66-MHz with 16M bytes of memory and a 540M-byte hard drive, and I have this problem all the time. I have tried everything from a temporary swap file to a permanent swap file.

What I don't understand is why any business would trust putting Windows on a network or stand-alone. It is the most unstable software that can be put on a computer. Unless you save your work every two or three minutes, you can almost guarantee kissing it good-bye.

The advantages of Windows far outweigh DOS in that you can use all your TrueType fonts and open several windows at once without closing and saving an application. But you also got have to take the chance that you will get that lovely little message on your screen that basically says, "You have just lost everything!"

Pat Riesner
Irvington, N.Y.

Seize the moment

The article "Doomsday" [CW, Sept. 6] was depressing. The depression comes not from the billions of dollars and years of effort forecast to meet the year 2000, but in its implicit prediction of status quo in the coming years.

We can infer from the forecast that there will be no improvements that reflect the continued plummeting of costs. The doomsday forecast is based on the assumption that there will be no information breakthroughs, no application language developments that will enable us to free ourselves of the stranglehold of obsolete languages and antiquated legacy systems.

Indeed, opportunities abound for new data formats and structures, new application development approaches and new computer functionality in these coming years.

If we fail to seize these opportunities, we deserve the "doomsday" consequences. The costs of these missed opportunities will not be limited to just changing date formats; they will make [writer] Peter De Jager's numbers look like just the tip of the iceberg.

Robert C. Kendall
Principal
Oswego Road Group
Hopewell Junction, N.Y.

RPC thread argument is moot

Franco Vitaliano's column "Get the message?" [CW, Sept. 13] contains one factual error that invalidates his entire argument. He tries to argue that the use of remote procedure calls (RPC) causes one to "lock two or more pieces of a distributed application together in a long-distance embrace."

He goes on to say that "Distributed Computing Environment (DCE) RPC threads do not get around this because most implementations of Unix cannot handle more than one RPC thread at a time...."

Mr. Vitaliano is misinformed. With DCE threads, as with many other (Unix-supported) thread packages, multiple concurrent activities, including RPCs, are supported. It is true that some thread packages do not extend their support *for* concurrency to applications doing network I/O, but this is not the case with DCE threads.

Thus, using DCE RPC, one thread may place an RPC to a server, while the remaining threads in the application go about doing other work. If there is a good argument for why "network message-passing systems" have advantages over RPC, it has yet to appear on the pages of *Computerworld*.

Thomas W. Doeppner Jr.
Associate Professor
Department of Computer Science
Brown University
Providence, R.I.

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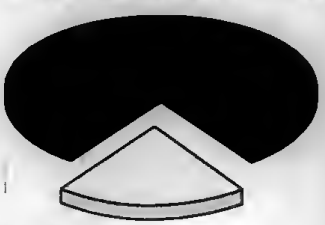

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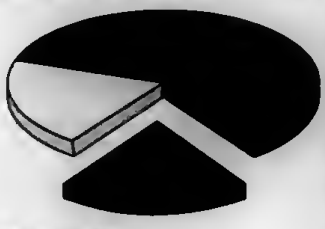

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Taming wild software country

Steve A. Epstein

Nobody in Dodge liked to be told what to do, but Matt Dillon was needed every week to protect the citizens from bad guys. Software engineering is a field rife with gunslinger geniuses, in all flavors and sizes, who are creating software at a dizzying pace. And we could use some authority to keep an eye on what they are doing.

What developers do and how they do it is a matter of concern to all of us in one way or another. The software they write not only implements procedures for accounting and human resources departments, but controls the operation of trains, airplanes, ski lifts, chemical plants, nuclear plants, space vehicles and cars.

The software engineering industry has some responsibility to assure the safe and proper operation of its products. The last decade has seen considerable progress in quality management and development methods. However, the effectiveness of these methods can be judged only by comparing measurements of the situation before and after. The answer to the question, "How safe is this piece of code?" must be better than, "We feel the code is very safe."

It's understandable that safeguards are still lacking. Software engineering is a young discipline, maybe 30 years old, and all its methods are not yet in place. When civil engineering was 30 years old, building codes and standards had not yet been invented. And lots of buildings

Bill Ferguson

probably fell down.

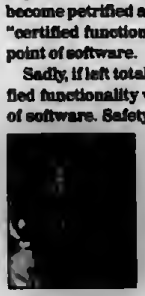
This isn't a situation that can be allowed to persist, however. The stakes are too serious. Everyone has tales of programs gone wrong — ones that gave good customers bad credit ratings, lost a day's work, caused the loss of telephone service to a major city or just didn't work quite the way one expected. Some piece of software, somewhere in the world, is doing something screwy right now. Bugs are endemic.

The answer is to begin by implementing techniques from the disciplines of software reliability, software system safety and software risk analysis, including measurement of failure rates over the life cycle of the software, software hazard analysis, software fault tree analysis and representation of uncertainty with probabilities. The results of these analyses should be clear, concise, reviewable, documented and quantified.

Licensing of software engineers may also be part of the answer. We require other engineers to publicly demonstrate competence in their fields. In fact, most states require hairdressers to be licensed. What about the development team that writes the control programs for high-speed elevators? Shouldn't the public be assured of their competence? Shouldn't an industry-standard safety review be available?

Esther Dyson, in her previous column [CW, Sept. 13], worried that too many processes will become petrified as a result of regulation, that "certified functionality" will become a selling point of software.

Sadly, if left totally to the marketplace, certified functionality will not appear as a feature of software. Safety assurance will not be perceived as a "value-added" without pressure from some sector.



Let's hope that the pressure doesn't come from disasters and lawsuits, but from the software engineering industry itself.

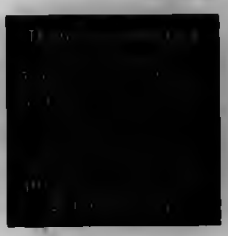
Epstein, a senior scientific associate at Safety Factor Associates in San Diego, is currently engaged in a risk analysis for the software for the NASA space shuttle main engines.

Hide the operating system, deliver value

OPEN MIND *by* Esther Dyson

Calling Taligent an operating system and trying to compare it to Microsoft's forthcoming all-object operating system, Cairo, misses the point. Taligent's real value-added is *above* the operating system.

In the beginning, the idea *was* to build a full-scale, totally new operating system, which would be object-oriented from the kernel up. And that description, of course, is a match for Cairo, which, like Taligent, is expected in 1995. But, sometime earlier this year, Taligent changed its strategy and separated its efforts into four parts: a small operating system kernel; a set of object-oriented operating system services; what Taligent calls the application programming model; and a set of development tools.



Taligent will now offer its own optional operating system, but the major part of its work — the application programming model — will be available for any of several operating systems, ranging from IBM's own OS/2 and OS/400 and Apple's System 7 to Unix and, quite possibly, Windows NT. In the new model, the operating system is hidden from developers and users. Most developers would work on Taligent's generic, extensible application model and get a free choice of operating systems.

Reversing the practice, employed by Microsoft and others, of bringing application functions, such as E-mail transport, into the operating system, Taligent moves them back out, not into applications, but into object modules. Taligent's real value lies here in its own cross-platform facilities, implemented as objects that provide services.

Of course, this is not a new concept. Indeed, it's what Steve Jobs should have done after leaving Apple instead of opting to sell an operating system on top of hardware. Why bother to make hardware — or an operating system kernel, for that matter — when other vendors are willing to sell these things at commodity prices? Taligent could do just fine selling the value-added on top of other companies' hardware and operating systems.

Since it is starting more or less from scratch, Taligent has the freedom to redesign the house from the ground up. While technically Microsoft also started Cairo from scratch, that product had to fit into Microsoft's well-established (to say the least) business infrastructure. In the business world, Microsoft owns the current model and stands to lose by the new one.

The challenge for Taligent is on the commercial side. People don't buy Microsoft products because of technical interoperability (which they take for granted) but because of the brand name. Customers claim they want openness, but they also want the security a brand name provides.

Taligent is one of a few with a good shot at overcoming that catch-22. There is no installed base to prevent Taligent from offering an open solution and, thanks to its parentage (IBM and Apple), it has enough marketplace credibility to provide a measure of brand security.

If Taligent is successful, people will complain that they are forced to buy applications built around Taligent's standard. But that's the sort of problem Taligent President Joe Guglielmi would love to have.

Dyson is editor of "Release 1.0," and "Rel-East," newsletters on new technology and new computer markets in Eastern Europe.

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The ALM 3226 connecting a laptop to a cellular phone. (Approximate size is 1" X 2½" X 5¼")

RACAL

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Borland looks for Advantage in support

By Michael Vizard
SCOTTSVALLEY, CALIF.

Seeking to make itself more attractive to information systems departments, Borland International, Inc. recently unveiled its Borland Advantage program, which seeks to codify many of the under-the-table policies employed by software vendors into a standard license.

Advantage, the latest move in the ongoing battle over licensing options among PC software vendors, seeks to differentiate Borland from its rivals by factoring an average-use estimate into its standard site license packages, while also factoring in the amount of Borland software already installed at the site.

In contrast, Microsoft Corp., Lotus Development Corp. and WordPerfect Corp. all offer roughly equivalent volume and site licensing deals, but each of these programs requires IS directors to haggle with vendors to achieve the equivalent of the deals spelled out in the standard Borland contracts.

For example, the state of Texas worked with Lotus, even though it does not have a minimum purchase requirement and does not factor installed base into its standard contracts. This gives the state the top-tier site license deal based on its buying potential, according to Larry Lehmann, fiscal director. Lehmann has purchasing authority for more than 140,000 PCs.

Same wavelength

But working with Borland to achieve that same goal was easier, Lehmann said.

"Borland understood our situation in government vs. the commercial sector right away and walked in with flexible terms. With other companies, we would have to negotiate through three or four layers of management to get the same deals," Lehmann said.

"This will be a whole new concept for a lot of companies. We're very, very thrilled about this program," said Dave Newhouse, a microcomputer specialist at the Federal Deposit Insurance Corp. in Arlington, Va.

The Volume Licensing portion of the Advantage program allows a site purchasing more than 500 units of Borland software valued at $10,000 to qualify for discounts. To qualify, sites can include their installed base of licenses in addition to the licenses they are about to purchase. In addition, Borland will include installed copies of WordPerfect's word processing software as part of this program through Dec. 31.

As a result of Advantage, which will be available through both resellers and Borland, IS

Borland, *page 38*

It's a DOS eat DOS world

By Ed Scannell

While IBM's Personal Software Products group arguably delivered a better DOS than DOS in June with its Version 6.1, the product still faces a hard uphill run to escape niche status.

With the ink just dry on its divorce settlement with Microsoft Corp., Personal Software Products now faces the task of developing and, more importantly, marketing DOS on its own. In the past 12 years, the latter responsibility was largely taken care of by now-archrival Microsoft. IBM needed to worry only about providing PC-DOS for its captive base of hardware users.

But now Personal Software Products officials are faced with the unenviable task of persuading hardware manufacturers to dump their long-standing relationships with Microsoft and sign bundling deals with IBM.

Tough road ahead

Placing PC-DOS 6.1 in the same category as Novell, Inc.'s implementation of DOS, Jeff Tarter, editor of "The Soft Letter" in Watertown, Mass., said, "They need to get out there and aggressively cut some deals. It is not going to be easy."

While Personal Software Products has signed OEM deals for PC-DOS 6.1 with a handful of second-tier clone makers in Europe and Japan, it has signed only one in the U.S. with Orientech, Inc., a small West Coast maker of systems and peripherals.

One of the factors that swayed Orientech toward PC-DOS 6.1 was that IBM lets the company bundle DOS not just with systems but with peripherals such as hard drives, said Robert Ho, a senior technical consultant at Orientech.

But based on the strength of what they believe are the superior features of PC-DOS 6.1, and what users say are bugs and shoddy design of some features in MS-DOS 6.0, Personal Software Products officials said they think they can tear a couple of major OEMs away from Microsoft.

"A lot of customers took note of the way [MS-DOS 6.0] went out," said Wally Casey, director of marketing for Personal Software Products, referring to those users who lost data due to what users claimed were either bugs or poor design of the product's compression and SmartDrive features. "How comfortable will they be when things like DOS 7.0 get delivered?"

While PC-DOS 6.1's user base is minuscule compared with MS-DOS', most of those customers appear steadfastly loyal. They said the product is much more stable than when MS-DOS 6.0 was released, and they said they like its full-featured, built-in utilities such as the Backup and Scheduler.

"With the utilities they have bundled in, this is much more of a DOS users' DOS. It is also a lot cleaner and a little smaller than Microsoft's," said Jim Forney, a beta user and consultant in Brick, N.J.

With Microsoft pushing Windows more than DOS — its upcoming Chicago product will be Windows with built-in DOS functions — some users said they think IBM is doing the right

DOS, *page 36*

Arbor bolsters tool for spreadsheet users

By Michael Vizard
SANTA CLARA, CALIF.

■ Arbor Software Corp. is in the process of delivering Version 3.0 of its Essbase database, which is specifically tailored to allow multiple Microsoft Corp. Excel and Lotus Development Corp. 1-2-3 spreadsheet users to access the same data.

Essbase consists of a proprietary database architecture that can reside on either an OS/2 or Windows NT server.

Arbor Software's Essbase *allows spreadsheet users to perform multidimensional analysis of data*

Spreadsheet users can then access and analyze data stored in that database, which can consist of up to 17 trillion data blocks, using standard spreadsheet commands. Once accessed, Essbase data is then displayed in a multidimensional context in either Excel or 1-2-3 spreadsheet cells running on Windows, DOS or Macintosh systems.

Flexibility is key

"We went with Essbase, as opposed to a database like Paradox, because we didn't want to have to learn a whole new language. We can access data using the standard Excel commands," said Tony Regan, controller at Kaneb Services, Inc., an oil and gas service company in Dallas.

Kaneb currently uses Essbase as a tool for rolling up spreadsheet data from subsidiaries in 10 countries. In addition, flat-file data from an IBM AS/400 system is also loaded into Essbase for analysis.

"For us, Essbase is a lot more flexible and easy to set up," Regan said.

With Version 3.0, Arbor has added easier-to-use data structure tools that make easier-to-define relationships among data, create scripts and assign multiuser access security levels. In addition, Arbor has added support for an IBM SQL interface that will allow users to import data from 20 different PC and SQL databases into Essbase. Other enhancements include 30 additional macro commands, support for Excel running on a Macintosh and TCP/IP.

Pricing for Essbase starts at $35,000 for a five-concurrent-user license.

DOS eat DOS

CONTINUED FROM PAGE 35

thing in pushing a DOS solution to the tens of millions of users who still have not gravitated to Windows.

"With Microsoft going away from DOS and toward Windows, there is a huge DOS base out there that will be more willing to listen to IBM," said one beta user who requested anonymity.

How much longer that DOS base stays huge remains to be seen. Microsoft claims that close to 70% of all PCs shipping in the U.S. are bundled with Windows and that 82% of users upgrading to MS-DOS 6.0 use Windows.

Learn from others' mistakes

Although Microsoft has never admitted to any major bugs that resulted in data loss, it recently issued a widespread beta release of its MS-DOS 6.2 that added several new features to MS-DOS 6.0's DoubleSpace compression utility and SmartDrive feature.

Watching the difficulties Microsoft experienced with users and the DoubleSpace compression utility, IBM held off bundling such a utility with PC-DOS 6.1 until it could do further testing.

The company expects to make Adstor, Inc.'s SuperStor Pro compression utility available free to registered PC-DOS 6.1 users later this month.

Personal Software Products officials said they hope to give PC-DOS a more distinct advantage over MS-DOS with a version of its object-oriented Workplace Shell interface sometime early next year. Microsoft is not expected to have a similar update to Windows 3.1 until it ships its 32-bit version of Windows, code-named Chicago, in mid-1994.

Workplace Shell for DOS

IBM is working on the DOS version of the WorkPlace Shell with a five-person start-up in upstate New York called Paper Software, Inc.

The company, headed by ex-IBMer Mike McCue, who worked on OS/2, delivered Sidebar 2.01 earlier this summer, giving PC-DOS users a preview of what the DOS version of the Workplace Shell will look like.

Sidebar, designed as a Windows shell, takes up only 280K bytes of code compared with the multiple megabytes of code that compose the OS/2 version of the Workplace Shell.

"We had a design goal to strike a balance between Macintosh-like foldering and DOS-like file management and to do it in a form factor that makes good use of screen real estate," McCue said.

While Microsoft is already promoting Chicago, IBM has so far remained quiet about what it might do in terms of coming up with a competitor. PC-DOS 7.0 will be the first DOS product IBM has created without any technical help from Microsoft.

"Actually, there is a DOS 7.0 competitor we are working on. It is called OS/2," Casey quipped. "It is already 32-bit and multitasking."

Kodak offers warehouse for stock photos

Eastman Kodak Co. in Rochester, N.Y., has announced the Kodak Picture Exchange, an electronic warehouse for stock photography.

Intended primarily for image-intensive businesses that make extensive use of stock photography, the Kodak Picture Exchange provides 24-hour dial-up access to a library that contains approximately 100,000 images.

Users can browse through photos online and download electronic proofs for $9 per image. If the photo is accepted, the user must then negotiate a separate contract with the stock agency.

The $399 enrollment fee supports up to five user identifications. Software kits start at $360 each, and on-line access charges are $85 per hour.

According to a Kodak official, the costs of using the service can be significantly less than photo agency research fees, which typically run $75 to $100 per search per agency.

Some 14 photo stock agencies have reportedly signed on to the Kodak Picture Exchange.

AT 9 A.M. HE DIDN'T KNOW HOW TO WORK WITH A DATABASE.

When Don Glor came to work on the morning of September 15, he'd never used a database before. Two hours later he'd developed his first application — it looks like a fire truck, actually it's a customized inventory and billing management system for the South County Fire Department, San Mateo County, CA.

Don was using Lotus® Approach™ — the only database designed for fire fighters. And lawyers and doctors and business people. And anyone who isn't necessarily a computer expert.

world is no good if you can't use it. Approach is expressly designed to be easy. There's no programming to learn. No endless documentation to study. And according to independent research, "The average Approach user produces real results with their database in 2 hours."

This will surprise anyone who has tried to work with databases like Paradox® or Access®. According to Don, "I tried Access and shelved it. It was just too difficult to get a handle on." That's not surprising considering the 543 page supplemental language reference for programmers Don would've had to pore through. Which looks like light reading next to Paradox's 1300 pages of programming instruction.

The difference is that their products were not designed for general business users.

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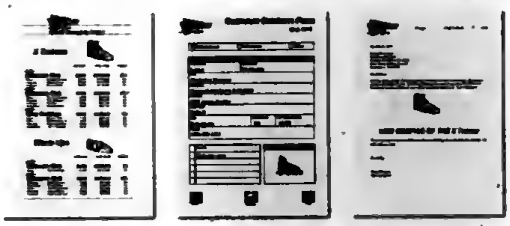

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PCMCIA standard starting to spread its wings

By Michael Fitzgerald

Users holding their breath to see the developing PCMCIA standard stabilize can exhale now. A couple of recent developments show the standard really will happen, albeit not until sometime next year.

Included among the developments are the following:

- Microsoft Corp. licensed SystemSoft Corp.'s CardSoft product and said it would build PCMCIA support into future versions of its Windows operating environment, including At Work for Mobile Companions, which is due out next year.
- Five hard drive makers — IBM, Maxtor Corp., Seagate Technology Corp., SunDisk Corp. and Toshiba Corp. — completed a much-delayed agreement to ensure that their PCMCIA hard drives will be compatible with one another and with the PC Card AT-Attachment standard. Microsoft said its At Work software will also support the standard.
- Toshiba America Information Systems, Inc. said it was shipping Toshiba Card Manager, its implementation of the PCMCIA Socket and Card Services standards. All of Toshiba's PCMCIA-capable portables will now ship with Card Manager.

"The PCMCIA cards still aren't compatible enough. You've only got about a 70% recognition rate on cards, and that's still caveat emptor," said Jeffrey Henning, an analyst at BIS Strategic Decisions in Norwell, Mass.

Users contacted said they had largely standardized on single brands to avoid this problem but said that in the future, the prospect of having PCMCIA drives on both portables and desktops will make interoperability more important.

Power hog

"I could perceive somebody saying [PCMCIA] is how we'll exchange data between the desktop and portable world," said Joe Barrett, lead technical analyst at Whirlpool Corp. Barrett said his users found the power drain PCMCIA cards a rude awakening.

Microsoft's decision to build CardSoft into its operating system will also help advance its Plug-and-Play desktop initiative, according to Paul J. Sereiko, director of product marketing at SystemSoft in Natick, Mass.

"This means that PCI, IBA and PCMCIA cards will all tie together in a single box," Sereiko said.

Despite the major developments of recent weeks, the road for PCMCIA may not be smoothed over. Many cards and systems were shipped before standards were in place. Sereiko said, however, that things "are getting better, not worse."

Also, the hard drive initiative looks to exclude some players. "The IBM/SunDisk/Toshiba alliance doesn't seem so open to me. They've locked the door and ... that's not the way you develop a standard," said Jim Miller, president and chief executive officer of MiniStor Peripherals, Inc., a pioneer in PCMCIA hard drives.

Name calling

The unwieldy PCMCIA acronym, which stands for Personal Computer Memory Card International Association, or People Can't Memorize Computer Industry Acronyms, according to Andy Seybold, editor-in-chief of the "Outlook on Mobile Computing," may soon go away. Sources said the name will be changed in part because the standard has evolved far beyond memory cards.

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Lotus signs integration pact

By Michael Vizard
CAMBRIDGE, MASS

In a move that is expected to signify a general trend in the personal information software arena, Lotus Development Corp. has signed a pact with Cognitive Technology Corp. in Larkspur, Calif., under which it will integrate its Organizer personal information manager (PIM) with a business card reader developed by Cognitive.

Called the Business Card Reader, the Cognitive offering consists of a database that has been linked to a variety of optical character recognition scanners. Once a business card is scanned into the Cognitive database, users of Lotus' Organizer software will be able to integrate that information with data stored in their PIMs.

In general, users said they expect to see business card readers integrated with a variety of PIM packages.

"I expect to see the people who make business card readers to support a variety of PIM packages," said Jim Wainwright, a programmer at C. J. Segerstrom & Sons, Inc., a real estate holding company in Costa Mesa, Calif.

In addition to Organizer, the Business Card Reader supports Borland International, Inc.'s Paradox and dBase file formats, and cards can be scanned either individually or in groups of up to eight. Each Business Card Reader can accommodate up to 32,000 business cards, which can be scanned in black and white, grayscale or color.

Pricing for Business Card Reader, which is compatible with more than 60 scanners, is $99. It is available on Windows, with a Macintosh implementation due early next year.

C-Cube offers MPEG standard

By Michael Fitzgerald
MILPITAS, CALIF.

C-Cube Microsystems last week announced its VideoRISC Compression Architecture, designed to set standards for real-time digital video compression and decompression in Motion Picture Experts Group (MPEG) format.

Real-time video compression and decompression will enable certain applications, including the ability to receive shows from satellites through boxes that sit atop televisions. These "set-top" devices may be used for a variety of other applications, including data transfer and multimedia applications.

Observers said the C-Cube introduction was important because it combined image compression and decompression in one format and is programmable.

"[Programmability] is good because if MPEG changes, all that needs to be done is to have new code downloaded on the chip," said Jake Richter, president of Panacea, Inc. in Londonderry, N.H.

C-Cube also released two implementations of VCA, the CLM4600 Broadcast MPEG 2 Video Encoder and the CLM4500 Consumer MPEG 1 Video Encoder.

Borland

CONTINUED FROM PAGE 35

shops will be able to purchase a copy of dBase IV, which lists for $795, for $350 instead if they order between 500 and 1,500 units. That price drops to $180 per unit for 5,001 to 7,500 units. On the street, dBase IV has an average price range of $500 to $525, said Greg Joy, Borland director of sales strategy.

The second offering under Advantage is a Maintenance program that provides automatic upgrades. IS shops can opt to cover part or all of their installed base under this program. The minimum order to qualify is $10,000.

The third offering is a Site License program, which can be based on the total number of PCs or software use. This model calls for Borland to confer with the customer on how often people are actually using a software package and then factor that into a concurrent-user pricing scheme.

"The usage pricing is what we're looking forward to. With 28 field offices and five buildings spread out through the Washington area, we don't really know exactly who is using what software when," Newhouse said.

"Under this program, Borland is letting us count dBase and Paradox licenses as single units. All the big software vendors have a corporate licensing program, but Borland is showing a willingness to work with me on licensing issues," he added.

To qualify for this program, an IS shop must have 1,000 licenses installed as well as a minimum order of $50,000.

Software

Micrografx, Inc. has announced SnapGrafx, automated business graphics software.

According to the Richardson, Texas, company, the product was designed to provide an easy way to produce and use business graphics.

SnapGrafx creates business graphics for spreadsheets, documents, slide shows and overheads with its automated features. Users can automatically size, shape, position and align business graphics with SnapPage, SnapShapes and SnapLines features.

A template gallery provides 20 commonly used business graphic types including comparison, time line, organizational, Venn and pyramid. A chart type from the gallery offers 300 more shapes.

SnapGrafx costs $295; however, the company is offering a special introductory price of $99 through Dec. 31.

▶ *Micrografx*
(214) 234-1769

Insignia Solutions, Inc. has introduced SoftWindows for Unix systems, a cross-platform compatibility product.

According to the Mountain View, Calif., company, SoftWindows provides Unix workstation users with the ability to run virtually any Windows application or utility at 486 PC performance levels.

The product offers full MS-DOS and Windows compatibility as well as built-in network support.

Features include host graphics speed and display quality, full support for Digital Equipment Corp.'s Object Linking and Embedding and Dynamic Data Exchange among Windows applications.

A single-user license of SoftWindows costs $549.

▶ *Insignia Solutions*
(415) 694-7600

Delrina Corp. has introduced Delrina FormFlow, forms processing software designed for developing forms-based work-flow automation solutions.

According to the San Jose, Calif., company, Delrina FormFlow unites electronic-mail capabilities with links to popular desktop and SQL databases. A built-in Basic-like, high-level language called the Intelligent Forms Language allows the product to customize form applications.

Delrina FormFlow can be used for both administrative and line-of-business applications.

Delrina FormFlow is available for 5, 10, 25 and 50 users. A 10-user pack costs $1,840.

▶ *Delrina*
(408) 363-2345

Learn PC and Lotus Development Corp. have introduced the Using Lotus Notes 3.0 Video Training Series.

According to Minneapolis-based Learn PC, the series provides self-paced instruction on the complete set of Notes features. Three personal guidebooks, three one-hour videotapes and two practice disks are included.

The product was created for both beginners and experienced users.

Total user training to proficiency is estimated to be between five and six hours.

The cost of the three-course series is $995. Individual courses are available for $395, and an additional 10 guidebook/disk set option costs $300.

▶ *Learn PC*
(612) 930-0330

The MathWorks, Inc. has announced the Matlab Image Processing Toolbox, a product that provides advanced image processing functionality and robust numeric computation in an integrated environment, according to the Natick, Mass., company.

The Toolbox is based on Matlab's visualization and computational tools and allows users to manipulate, visualize and analyze images and two-dimensional signals. Matlab can be used for applications that include medical diagnostics, astronomy, industrial inspection, laboratory data analysis, electronics design and remote sensing.

The Image Processing Toolbox requires Matlab and the Signal Processing Toolbox.

Pricing begins at $895 for single-user microcomputer copies.

▶ *The MathWorks*
(508) 653-1415

Intex Solutions, Inc. has introduced the Tax Solver.

According to the Needham, Mass., company, Tax Solver is a program that lets users examine the effect of any tax-saving strategy within a DOS or Windows spreadsheet.

Tax Solver employs the file linking, graphics and "what if" capabilities found in Microsoft Corp.'s Excel and Lotus Development Corp.'s 1-2-3, providing users with an assortment of ways to search for saving taxes.

One hundred and forty-seven Internal Revenue Service-approved forms and schedules are provided.

Individual, business and professional modules are available.

Prices range from $59 to $495.

▶ *Intex Solutions*
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Hardware

Zenith Data Systems has added six models to its Z-Note line of notebook PCs.

The Z-Note+ notebooks offer advanced color video technology, 25-MHz and 33-MHz Intel Corp. 1486SL microprocessors and increased hard disk capacity, the Buffalo Grove, Ill., company said.

Features include preloaded network software, a high-speed communications port, power management, simplified desktop connections, security and a 200M-byte hard drive.

Notepoint, a portable two-button, Microsoft Corp. Mouse-compatible pointing device, is standard with all of the models.

Prices range from $2,599 to $4,599.

▶ *Zenith Data Systems*
(708) 808-5000

Product shorts

ViaCrypt has announced ViaCrypt PGP, a high-security public key message encryption program designed to protect electronic-mail and data files. Transmitted messages or exchanged files are secured against unauthorized readers, and the program provides digital signatures, data compression and key management. Cost: $199.95 for a DOS single-user license, $599 for a five-user license and $1,849.95 for a 20-user license. ViaCrypt, Phoenix (602) 944-0773.... **In Focus Systems, Inc.** has introduced LitePro 550, an LCD projector for portable, plug-and-play presentation of audio, computer graphics and video images. The product integrates a full-color, active-matrix display, projection optics, light source and audio system and is compatible with most PC and Macintosh computers. Cost: $8,999. In Focus Systems, Tualatin, Ore. (503) 692-4968.

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- Do you process interactively (3270), in batch (RJE), or both?
- Are your UNIX systems linked to LANs? Are there SNA gateways for these LANs?
- Do you use program interfaces such as HLLAPI, APPC/LU6.2, and LUA/LU0?
- How do you manage your network? How will you distribute programs, files, and data to your remote UNIX systems?
- How will your network evolve in the future?

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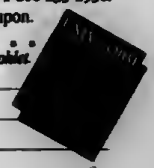

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SCO

Elisabeth Horwitt

Foolish feud

Just how difficult is it for two rivals to cooperate for the benefit of their customers?

Novell and Microsoft recently broke off their alliance to codevelop a NetWare redirector for Microsoft's Windows NT. Microsoft instigated the break by announcing it would provide its own redirector because Novell was taking too long to bring out a full-function, general-release version of the codeveloped product. Users were expressing impatience with the ongoing absence of a full-function redirector, according to Microsoft.

A prerelease version of Novell's redirector has been available on CompuServe for months now; however, it still lacks a few major capabilities, as Novell spokesmen admitted [CW, Sept. 27].

What will users gain from buying Microsoft's product? A few months at most, Novell says.

Petty fight

This falling out between the two vendors "is stupid," says Louis Kahn, chief of network operations at the National Immunization Program in Atlanta. "They need to work together; they need each other."

Having two vendors to choose from is likely to mean reduced options, Kahn says. "I wager Microsoft will support the NT environment better than Novell, and Novell will be better at interfacing with NetWare. For users, it's a catch-22."

Microsoft's redirector supports print and file services on NetWare 3.11 and NetWare 4.01 services through bindery emulation, a spokeswoman says. Novell's redirector lacks support for key Microsoft clients within NT, including Windows, Winsockets and DOS.

Novell says most of those features, with the possible exception of virtual DOS support, will be in the initial release. The company

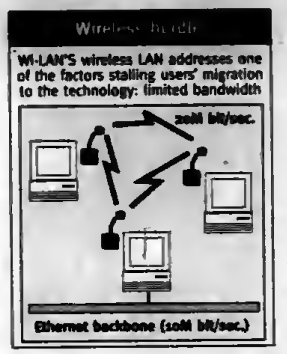
Horwitt, *page 44*

Wireless LAN barriers fall

By Lynda Radosevich

A development in wireless LAN technology announced at Networld '93 may smash that technology's current bandwidth limitations, and several other recent developments point to the momentum wireless LANs are gaining.

"This wireless stuff is really beginning to catch fire, but we are at the very beginning of the stage here, like PCs were in the 1970s," said Craig J. Mathias, principal at Farpoint Group, a consulting firm in Ashland, Mass.



Canadian start-up developer Wi-LAN, Inc. in Calgary, Alberta, said it will deliver in the first quarter of 1994 wireless adapters that support an aggregate data transmission speed of 20M bit/sec. for computers using up to 1.5M bit/sec. of bandwidth each. The adapters use Ethernet-compatible frames and can interoperate with Ethernets, according to the company. Current wireless LAN products require users to share a maximum of 5.7M bit/sec. [CW, Sept. 13].

While analysts and users briefed on the technology said it is technically feasible, they believe it will be difficult to deliver. "I'm dying to see it," Mathias said.

Increased bandwith

If successful, the Wi-LAN wireless will address a major wireless LAN shortcoming: limited bandwidth.

"Up until this point we've had to put up with a little less bandwidth as a trade-off for using wireless," said Capt. Todd Pittman, a senior project engineer at the U.S. Air Force's Command Control Communications and Computer Agency in Scott Air Force Base, Ill. "As we continue ongoing wireless LAN research, we will look at this because of the high speed."

Wi-LAN's adapters will use a form of direct-sequence spread-spectrum technology called "code division multiple access," which assigns a code to all bits, scrambles and combines individual bits into a string of bits, transmits encoded strings over a broad spectrum and reassembles them via a receiver. This is necessary because it helps reduce interference in the 902- to 928-MHz frequency range in which Wi-LAN operates — an unlicensed space with interference from cordless phones and other devices. Instead of sending information over one channel, Wi-LAN will send it over multiple channels simultaneously.

"It's kind of like stringing multiple wires to a single user rather than one wire," Mathias said.

The Air Force is interested in wireless networks for deployable LANs that can be set up in the U.S. and shipped abroad with a division, Pittman said. For that application, the 2.4- to 2.483-GHz range is best because most governments allow radio use there.

Wi-LAN plans to move to that range shortly after shipping its original product in the first quarter of next year, according to Hatim Zaghloul, Wi-LAN co-inventor.

However, more than speed, Pittman said distance was his biggest concern. At an operating range of 300 unencumbered feet, the Wi-LAN wireless likely does not reach far enough for Air Force applications, which need ranges of 700 feet and up.

Wi-LAN will cost $1,495 per adapter. Other product specifics include a transmission speed of 20M bit/sec., a radius of 90 obstructed feet or 300 unobstructed feet, compatibility with the Ethernet protocol, a frequency range of 902 to 928 MHz and patented encryption.

Other announcements

- Meanwhile, San Jose, Calif., start-up Wireless Access, Inc. recently announced a wireless PCMCIA card for Hewlett-Packard Co.'s HP 100LX and Tandy Corp.'s Z-Series. The adapter will sell through distributors such as SkyTel and MobileComm in January for around $400.
- Proxim, Inc. and Raytheon Co. have announced joint development of an integrated circuit said to reduce power consumption and size requirements and increase transmission ranges for wireless PCMCIA-based networking products.
- Fujitsu Personal Systems, Inc. said it will employ Proxim's wireless technology in PadPlus RF, a pen-based device used for data collection in warehouse inventory tracking and field sales force automation. The device combines the radio transmitter and wireless adapter to increase mobility.
- Da Vinci Systems, Inc. announced at Networld a partnership with RAM Mobile Data and Business Networks Ltd. to provide wireless messaging for Novell, Inc. Message Handling Service users.

Unix servers speed emergency response

By Thomas Hoffman
MINNEAPOLIS

Until recently, the computer-aided dispatch systems used by the city of Minneapolis' Emergency Communications Center (ECC) could initiate a response to a fire within 30 to 60 seconds. Although those response times were acceptable, improvements were needed to enable the police and fire departments to react faster to emergencies, where lost seconds can mean lost lives.

Starting last June, the ECC began replacing its overburdened AT&T 3B2 minicomputer-based computer-aided dispatching systems with a set of NCR Corp. 3550 Unix-based servers that has since slashed the time it takes to launch a fire response to less than 20 seconds, according to Patti Wallin, the ECC's technical systems manager.

"The new technologies that we have implemented have shaved significant chunks of time off the alerting phases," said Jeff Nelson, assistant director at the ECC. Plus, he said, the older 3B2 minis crashed frequently, resulting in extended periods of downtime, which has since been resolved by replacing the minis with more reliable NCR servers. "Now the only downtime we have is scheduled," Nelson said.

ON SITE

City of Minneapolis

Challenge: To speed emergency response.

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Results: Reduced the response time to a fire to less than 20 seconds from 30 to 60 seconds.

Contributing to the delayed emergency responses were the disk I/O bottlenecks that were strangling the performance of the AT&T 3B2 minis, according to Kevin Herrboldt, a network software engineer at the ECC. Herrboldt said the 3B2 minis, which ran under the Unix V Release 3 operating system, typically ran six to eight jobs on the load queue, or twice as many jobs as they were designed to handle.

Furthermore, retrieval and transmission of historical information from the Oracle Corp. Version 6.034 relational database management system was slow. Because Oracle 6 is a cross-platform database, its data structure was not native to Unix under the 3B2s

Unix servers, *page 46*

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Put a sentry on your LAN

By James Daly

In the unending buzz of most corporate workplaces, interruptions that call users away from their desks or offices are common. And many people do not always stop to secure their data or turn off their machines before departing.

That is a big problem for network security administrators. Not only are shared resources tied up unnecessarily, but open files are also left vulnerable to anyone who happens to be strolling by. That could spell big problems as LANs grow in size and complexity.

Netinc. in Houston is promising relief from this administrative nightmare with NetSentry, an application designed to guard Novell, Inc. NetWare LANs from unauthorized use in both DOS and Windows applications.

LAN administrators can automatically log out idle workstations or configure NetSentry to blank a PC screeo after a period of inactivity. The user is then required to re-enter his NetWare password to resume.

Network administrators said they are forever hounding users to log out when they leave their workstations. Not only is this a smart move securitywise, but it also frees up network resources and software licenses. At first glance, the easy way to accomplish this might be to simply log out inactive workstations.

But that could mean trooble. Mike Avery, a network analyst at Texas' Department of Human Services in Austin who helps manage 650 file servers with 12,000 workstations, said this causes big problems because database files are left open with transactions in an undetermined state.

"We can't back up opeo files, so in the past, we've had to blow these users out of the water to do a backup, which always annoys them," Avery said.

Don't touch that button

Further, LANs sometimes have applications (such as those performing real-time data acquisition) that should never be shut down. Other applicatioos, such as accounting programs, require oser intervention. And then there is the question of saving your joh: One never wants to log off the boss.

However, this must be arranged in a flexible manner so that a shutdown is orderly. Open files must be closed and applications terminated properly, said John Toney, vice presideot of technical development at Netinc.

NetSentry uses a single text file for administratioo. The file defines users, groups, node addresses and applications that should never be logged out and can list tbe keystrokes or series of steps required to shut down individual applications.

Users can also configure NetSentry to automatically run alternate programs after the workstation is logged out. That way, formerly idle PCs can be used to automatically launch tasks such as tape backups, security audits and periodic LAN maintenance chores, Toney said.

NetSentry requires Novell NetWare 2.10 or greater. The cost is $395 per file server for unlimited users.

Horwitt

CONTINUED FROM PAGE 41

also promises that its redirector, when it finally comes out, will support "all the advanced services, like packet hurst, and our oew security and autheotication mechanism."

With the breakup of the alliance, tbe two rivals have regressed to petty insults. Microsoft accuses Novell of holding up the works. Novell, in return, claims that its delays were due to Microsoft's repeated changing of the NT kernel and implies that Microsoft did not freely provide it with information about those changes.

This is oot the only instance of these two vendors failing to achieve synergy and thereby hurting their customers. They continue to bicker about how Microsoft will license from Novell the code it oeeds to link the next version of Windows for Workgroups to NetWare.

It's not that the two companies are generally uncooperative; both have reputations for working well with partners and for being aggressive about generating third-party support, as evidenced by the bevy of partner announcements each made at Networld last week.

As a result of this fracas, however, users lose their chance to gain a prodoct for linking NT clieots to NetWare servers that is based on the two vendors' unique fields of expertise. Microsoft and Novell also lose because easy mixing and matching of their respective platforms would give them the opportunity to capture each others' customers.

In fact, in a situation like this, everyone loses.

There's still a chance for reconciliation. Word is, the technical staffs from the two companies worked together quite amicably. How about it, guys?

Horwitt is a *Computerworld* senior editor, networking.

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Unix servers

CONTINUED FROM PAGE 41

and thus suffered performance hits, Herrboldt said. The Oracle database housed historical information that the ECC would relay to its emergency response units, such as whether explosive materials were located at a fire site. The ECC transmitted the historical backgrounders through a radio-based communications network to more than 240 police, fire and rescue vehicles equipped with Electricom Automation mobile data terminals.

Replacement parts

The ECC tackled its I/O problems with three sets of replacement technologies. The agency started by replacing three AT&T 3B2 machines with speedier NCR 3550 servers that are configured with two NCR 6298 disk array subsystems to ease storage constraints caused by bandwidth.

Since replacing the computer-aided dispatch mini in June, the ECC has begun implementing an NCR 3550 to replace the 3B2 that processes messages to its remote emergency units. That system should be fully operational by the third quarter of 1994, according to Herrboldt. The ECC has already replaced the computer-aided dispatch backup machine with another NCR 3550 server.

The ECC also replaced the Oracle database with an Informix Software, Inc. Online 5.0 RDBMS which, unlike the Oracle system, runs native on Unix, thereby providing the agency with improved database performance on its new Unix V Release 4 operating system, Herrboldt said. In addition, he said the Informix database is easier for the ECC's three-person technical staff to maintain.

Even though the additional storage systems have had no visible effect on system performance, Herrboldt said they have already proved their worth.

"One of the biggest impacts we've had is in the retention of information, so we're able to keep more historical information available to police and fire units than we were able to before," Herrboldt said.

The new equipment, including hardware, database licenses and porting costs for the dispatching applications, has set the agency back $1.3 million. But these costs will be partly defrayed by a reduction in hardware maintenance.

The agency had been doling out $68,000 per year in hardware maintenance for the three AT&T minis. Now, hardware maintenance has been cut to $38,000, a $30,000 savings, for the three NCR servers and the two disk subsystems.

Briefs

SPARC chip partners

Sun Microsystems Computer Corp. said it has expanded its partnership with Texas Instruments, Inc. in Dallas to build the next generation of SPARC RISC processors. TI will now be more closely involved in the development and manufacture of the 64-bit UltraSPARC-1 chip, which is expected to have performance levels of at least 200 SPECint 92. Sun also unveiled an early-access program that will give systems vendors their first look at UltraSPARC prototypes in November. TI has shipped about 300,000 of the roughly 1 million SPARC chips installed worldwide, Sun said.

Antivirus on the server

With the increasing reliance on servers as keepers of mission-critical data, McAfee Associates, Inc. recently beefed up its Netshield antivirus software for Novell, Inc.'s NetWare file servers. Version 1.5 now detects 2,017 known file server viruses and includes added performance and systems management features, such as improved scanning speed and a redesigned interface, according to McAfee. The software costs $495 and includes two years of free updates.

Databases for NT

Fast Software Corp. and XDB Systems, Inc. recently announced Microsoft Corp. Windows NT versions of their object-oriented databases. Fast said it plans to ship its product by the fourth quarter of 1993; XDB promised first-quarter 1994 delivery.

Printing partner

Fujitsu Computer Products of America in San Jose, Calif., recently introduced a 300-dot/in. printer for workgroups that need to output ordinary documents and scanned images. The PrintPartner 101 Imaging Printer is rated at 10 page/min. and uses onboard image compression technology that automatically detects and decompresses image files such as TIFF Group 3 and 4. Because decompression occurs at the printer, network bottlenecks are avoided, Fujitsu said. The printer costs $2,650. Fujitsu will also offer through October a complementary copy of TextBridge, a Windows-based optical character recognition product from Xerox Imaging Systems, to buyers of its ScanPartner 10 scanner.

petition.

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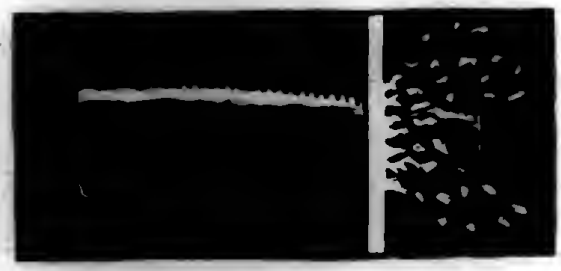

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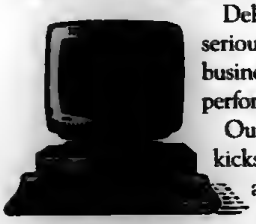

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AST courts small workgroup market

By Stephen P. Klett Jr.
IRVINE, CALIF.

In a bid to stake a claim in the Novell, Inc. NetWare-based segment of the server market, AST Research, Inc. last month unveiled a server family aimed at small workgroups of 50 PCs or less.

Premmia MTE targets a large base of potential customers; market research firm International Data Corp. (IDC) estimated that 65% of LANs in the U.S. are based on NetWare. AST's server offerings previously consisted of midrange and high-end machines.

"With Premmia, AST has become much more aggressive in the server market, effectively filling out its product line," said Susan Frankle, an analyst at IDC in Framingham, Mass.

Premmia MTE ships with either a 33-MHz Intel Corp. 1486DX or 66-MHz 486DX2 microprocessor, six Extended Industry Standard Architecture (EISA) expansion slots, six drive bays, 8M bytes of RAM, an integrated drive electronics adapter, 200-W power supply and two serial ports for roughly $2,000.

The following features are available as options: fast SCSI-2 adapter; 128K, 256K or 512K bytes of cache; up to 128M bytes of RAM and a Pentium upgrade slated for February.

AST also announced a midrange version of Premmia, called the Premmia SE, with 11 drive bays, eight EISA expansion slots and optional support for up to four SCSI-2 controllers. Prices start at $2,329.

In conjunction with the Premmia unveiling, the company announced Pentium availability for its Manhattan superserver. The symmetric multiprocessing machine supports up to five Pentium processors and is positioned as a minicomputer alternative or application server for Fortune 1,000 firms.

Manhattan houses up to 448M bytes of error correction code memory and eight EISA adapters. It offers redundant power supplies and supports RAID Levels 0, 1, 5 and 6 internally. Pricing starts at $26,999. Existing Manhattan customers can upgrade to Pentium by adding a processor board for approximately $5,000.

While AST's price points are less than those of Compaq Compnter Corp., Frankle said AST has work to do in the systems management area. "AST's machines don't have all the bells and whistles that Compaq's do, such as system management features and redundant hardware components," she said.

Beefed-up systems management offerings such as remote management and automatic reboot will be available in February 1994, said Maciek Brezeski, product manager for AST's server line.

Brezeski said he expects Pentium to spark Manhattan's sales, which have not been quite as brisk as expected since it started shipping in January.

Elco Thermoplastics, Inc. has not been waiting for Pentium with bated breath, but it is intrigued by the upgrade offering, according to Michael Person, a controller at the Mishawaka, Ind., firm.

A leading supplier of injection-molded plastic parts for the automotive industry, Elco purchased a three-processor Manhattan to run its mission-critical manufacturing operations last April. The server replaced a uniprocessor machine from Compaq that "was 96% maxed out," Person said. "Manhattan's biggest benefit has been speed," he added. "We've seen a performance increase already of 80%, and it is logical to assume Pentium would add to this figure."

Briefs

Oracle picks NCR

Database management software vendor Oracle Corp. has awarded NCR Corp. a $3.5 million contract to install NCR System 3000 workstations and servers at each of Oracle's 23 major field offices in the U.S. The NCR systems will be used for demonstrations, prototyping and training for all Oracle products, including the Oracle 7 Cooperative Server database, Cooperative Development Environment and Oracle applications. In return, Oracle will provide copies of these products for use in NCR's U.S. demonstration centers.

Sun milestone

Sun Microsystems, Inc. said this month that it had shipped its 1 millionth computer, a SPARCstation 10 workstation, at its Milpitas, Calif., factory.

The workstation was presented to Fujitsu Ltd. Chief Executive Officer Tadashi Sekizawa, whose firm makes many of the SPARC RISC processor chips used in Sun's system products.

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Innovus, Inc. has announced that Legato System, Inc.'s NetWorker software will be available for Hewlett-Packard Co.'s HP 9000 PA-RISC servers.

NetWorker for HP 9000 provides networkwide backup and recovery services for multivendor networks.

Hamilton, Ontario-based Innovus claimed that Legato NetWorker is the only enterprisewide software application that protects files on popular desktop systems and network servers when a file is damaged or destroyed.

Support is provided for a range of Unix clients including HP/UX, The Santa Cruz Operation's Unix, IBM's AIX for RS/6000 and DOS.

Available next month, NetWorker for HP 9000 will start at $2,000.

▶ *Innovus*
(905) 529-8117

AimTech Corp. has announced a development agreement with IBM under which AimTech's IconAuthor will support IBM's RS/6000 workstations.

According to the Nashua, N.H.-based company, the agreement enables nonprogramming multimedia users to produce interactive multimedia applications that combine graphics, text, animation, audio and video.

The authoring tool has an icon-based visual programming environment that lets IBM users create interactive productions for an assortment of applications including performance support systems, computer-based training and interactive business presentations.

A single-user license of IconAuthor 5.0 costs $10,000. A four-user license costs $30,000, and a 10-user license costs $60,000.

▶ *AimTech*
(603) 883-0220

Breakaway Software has introduced Picus, a system administration tool.

According to the San Francisco company, Picus handles day-to-day management of Unix servers and/or clients.

Picus has a layered client/server approach. Each layer is responsible for providing one phase of acquiring, preparing and presenting data. Picus also employs a Daemon-based messaging system that lets users monitor activities throughout the network.

Picus consists of eight modules that are accessed from the menu bar. These modules include user management, security, watchdog capabilities, networking and managing large networks, pool configuration and integrity enforcement, configuration and customization, teletypewriter processes and archive capabilities, according to the company.

The stand-alone version of Picus costs $1,995; the network version costs $3,995.

▶ *Breakaway Software*
(415) 969-3600

Network Specialists, Inc. has announced Balance, a Novell, Inc. NetWare Loadable Module designed to increase server performance and provide fault tolerance for NetWare v3.11 and 4.0 server environments.

Balance eliminates I/O bottlenecks by providing load balancing for incoming and outgoing IPX, Apple Computer, Inc.'s AppleTalk and TCP/IP traffic. The product also increases server use by accelerating the amount of packetized data from Macintosh-layer devices to a server, according to the Lyndhurst, N.J., company.

Balance costs $1,695.

▶ *Network Specialists*
(201) 804-8400

UniPress Software, Inc. has announced LAN Manager for Unix (LMU) for Sun Microsystems, Inc. workstations.

The Edison, N.J., company has ported LMU 2.2 to Sun, enabling Sun workstations to act as servers for PC client applications on DOS, Windows, Windows for Workgroups, Windows NT and OS/2 platforms.

From any of these platforms, users can access large Sun disks and fast Unix printers on the LAN Manager network.

LMU for Sun supports NetBIOS over TCP/IP or NetBEUI for either the standard Sun Ethernet board or the optional Sun Token Ring board.

Unix features such as seamless access to the Network File System, the Andrew File System and the Remote File System are provided.

LMU for Sun is priced at $2,995 for a 48-user server, $4,995 for a 128-user server and $7,995 for an unlimited-user license server.

▶ *UniPress Software*
(908) 287-2100

Qualcomm, Inc. has introduced The Eudora by Qualcomm software, an electronic-mail program that provides full-function interoperability between PCs and Macintosh systems across TCP/IP networks without specialized E-mail servers and gateways.

Features include message filtering and double-click attachment lines. According to the San Diego company, the Macintosh version supports Apple Computer, Inc.'s AppleEvent and offers a drag-and-drop attachment. The PC-compatible version provides Multiple Document Interface support.

Per-unit pricing for The Eudora by Qualcomm software is $50 for one to nine users. Volume discounts are available.

▶ *Qualcomm*
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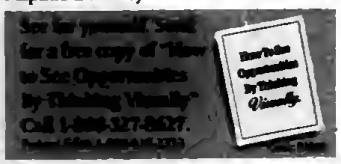

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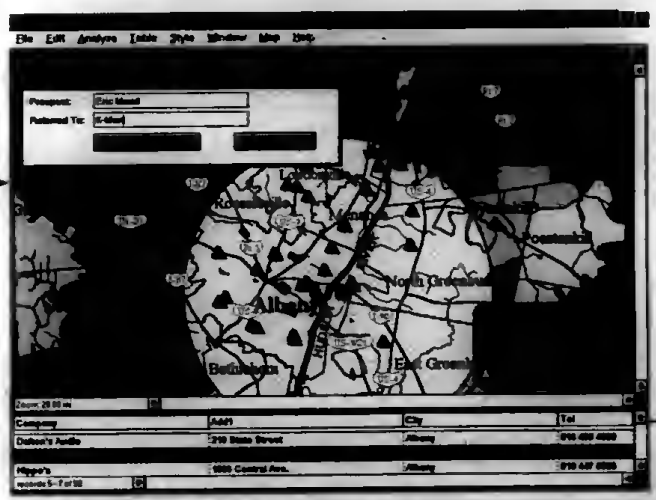

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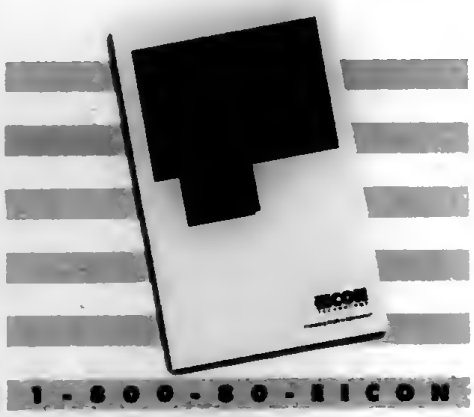

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TECHNOLOGY

Moving toward a wireless infrastructure

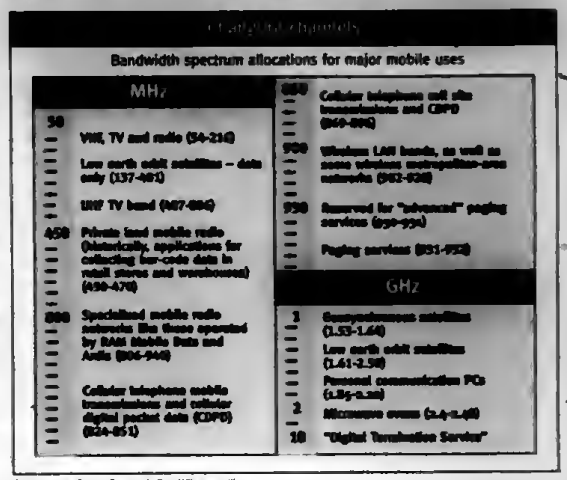
By Joanie M. Wexler

closer look: Wireless networks

Terms such as CDPD and PCS have started competing with packet radio, paging and other wireless schemes from the likes of Ardis, RAM Mobile Data, Motorola Embarc and SkyTel for user mind share. The emergence of these technologies is rendering network planning a near-Herculean task for companies trying to sort out the trade-offs of the various methods of communicating through the air.

There is good news, though: Most analysts agree that the multiple wireless transport methods, each with its own "home" in the radio-frequency spectrum (see graphic), will eventually merge into one large wireless infrastructure.

That infrastructure — like today's crisscross of circuit-switched, packet switching and other wired network schemes — will depend on end-user devices that sport multiple interface protocols for accessing different networks. These devices will also eventually have the intelligence to know which network service to automatically access given the application.



Source: DataComm Research Co., Wilmette, Ill.

"Devices will start coming in 1996 that will work with different media and switch from one service to another," said Roberta Wiggins, research director of wireless mobile communications at The Yankee Group in Boston.

Progress is already under way: AT&T's Hobbit chip set will begin combining wireless, wired and fax capabilities in 1994. Motorola, Inc. is also said to be working on chips that support both RAM Mobile Data's and Ardis' proprietary packet radio protocols, as well as the emerging Cellular Digital Packet Data (CDPD) protocol, though Motorola declined to comment on such activities.

Small potatoes

Consultancy CIMI Corp. predicts that the number of cellular network subscribers running data today is less than 1%.

Similarly, IBM's General Manager of Networking Systems Ellen Hancock said at the Interop '93 trade show in August that IBM would soon offer protocol-specific PCMCIA adapters for the various network services. The idea would be for users to swap these in and out of their laptops as the application dictated.

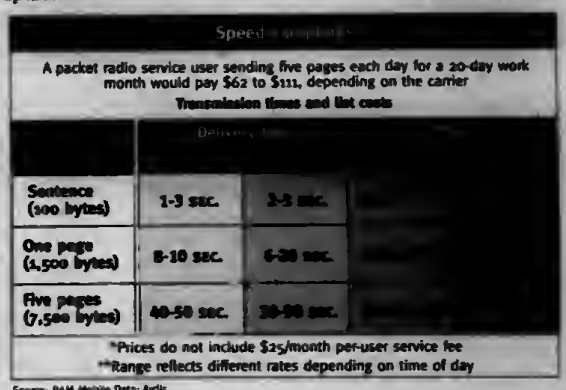
Douglas Fields, vice president of telecommunications at United Parcel Service, Inc. — today the world's biggest user of packet-over-cellular technology — said he thinks the inherent limitations of spectrum for wireless networks will be "a big-time stimulus for transmission efficiency through new coding and compression technologies." Put another way, Fields said he does not believe users will readily adapt to two kinds of networks: one local and high-speed, another wide-area, wireless and slow. "People will demand the same level of performance from all phases of their communications," he said.

Meanwhile, gateway services exist today in the form of RadioMail software, which serves to map Ardis protocols to the RAM Mobile Data network and vice versa, and Motorola's Mobile Networks Integration (MNI) technology, announced last April. In one form, the "open" MNI architecture is software residing in a central database that does protocol conversion.

However, DataComm Research Co. in Wilmette, Ill., sees a problem with multiprotocol, chip-based schemes. "It's very easy for them to talk about two-in-one or three-in-one [products] but making these things work and interoperate is much tougher than vendors let on," President Ira Brodsky said. At a minimum, multiprotocol devices will be expensive to start, he said.

Some analysts said they believe personal communications services (PCS) stand the largest chance of be-

Wireless, *page 54*



Source: RAM Mobile Data; Ardis

Alphabet soup

The following is a glossary of wireless networking technologies and their general targeted applications:

▶ **CDPD (Cellular Digital Packet Data).** An emerging technology that transmits data over cellular networks by inserting data packets into unused voice channels. Its main use is likely to be for short, bursty transactions, such as mobile credit-card authorizations.

Status: No users other than those in trial mode today. Half of the McCaw Cellular Communications, Inc. network is slated for some CDPD channels by year's end; McCaw plans for its entire network to have some CDPD channels by second-quarter 1994. Service availability is slated for year-end 1994 from Ameritech Corp., GTE Mobile and Bell Atlantic Corp.

▶ **Circuit-switched cellular.** Uses today's cellular network to transfer connection-oriented data via a cellular modem, much in the way users transmit data over today's analog-wired networks via digital-to-analog modems. Main use will be for sending long files and faxes.

Status: In use but faces inherent connection unreliability and, like all cellular services, is expensive.

▶ **Mobile satellite service.** Voice and messaging-oriented technology targeted at places without an existing wired infrastructure. The problem with using it for data is the propagation delays associated with satellite.

Status: In use.

▶ **Packet radio.** Connection-oriented service akin to wired public-packet switching but based on radio-frequency technology. It is intended for mobile terminal applications.

Status: In limited use by subscribers of Ardis and RAM Mobile Data networks. Users report varying degrees of reliability.

▶ **Paging.** One-way data messaging and broadcast technology. The majority of applications relies on small message transmission. Main vendors are Motorola Embarc and SkyTel. The Federal Communications Commission has, however, opened spectrum for future two-way paging services, due to arrive at the end of 1994.

Status: Mature.

▶ **PCS (personal communications services).** Individualized voice and data messaging service, based on the concept of large numbers of ubiquitous microcells that require minimal battery power and thus allow for smaller portable devices.

Status: Embryonic. FCC only last month announced its plan for allocating thin slices of spectrum in the 2-GHz range to potential service providers. The auction is to take place next May.

▶ **SMR (specialized mobile radio).** Voice-only technology in which equipment can only be operated in a vehicle.

Status: Mature.

▶ **ESMR (enhanced mobile radio).** Adds data to SMR and allows its use with portable systems.

Status: First network expected in 1994.

Sources: Computerworld, The Yankee Group, CIMI Corp.

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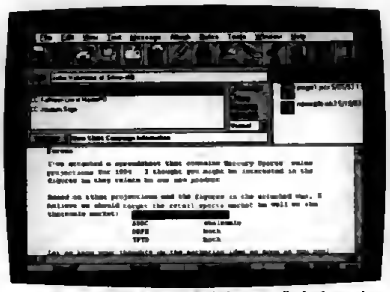

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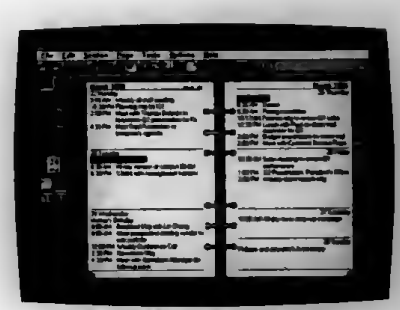

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Banyan adds distribution tools

By Elisabeth Horwitt
WESTBORO, MASS.

Banyan Systems, Inc. last week announced its Enterprise Data Distribution (EDD) strategy that will allow users to distribute and collect all types of data across heterogeneous network operating systems and client/server environments.

Novell, Inc. and Microsoft Corp. are in the process of rolling out products that enable users to automatically distribute software and updates across enterprise client/server systems. Indeed, Novell rolled out its Network Navigator NetWare Loadable Module for software distribution at last week's Networld '93. And Microsoft has announced plans to provide similar capabilities for its Windows NT Advanced Server through the upcoming Hermes network management system.

Task automation

However, Banyan is taking a much broader tack with EDD, according to Drew Wolff, senior product manager. Scheduled to roll out in mid-1994, the product aims to lower enterprise client/server administration costs by automating the following tasks:

• Distribution of data or software across multiple servers and clients. For example, a server could be programmed to automatically distribute a software update across the enterprise overnight. The product will support "chained distribution," in which the file or software update is sent to one server at a site that updates its own clients and then sends the file on to the other servers at that location, Wolff said. This can save customers significantly on bandwidth compared with the traditional method of sending the same update to each server at a given location over long-distance dial-up lines.

• Collection of data from multiple disks at remote sites and consolidation on a central server. This is particularly useful to retail chains and service companies that need to regularly collect data about their outlets' daily business operations.

"When EDD becomes available to distribute software to the desktop, it will solve our major problem of ensuring that all desktops are more or less equal" in terms of what they are running, said Marek Dziedzic, an information systems analyst at Stentor Canadian Network Management in Ottawa. "That would be a great help because we would no longer depend on local administrators" to implement new releases and updates, he added.

EDD will be fully integrated with other Banyan enterprise network services, such as StreetTalk III global directory, Intelligent Messaging, Security and Banyan's upcoming graphical user interface-based network management services, Wolff said.

Integration with Intelligent Messaging will be an added benefit for EDD because it will enable the service to "move data only when the network was not busy," Dziedzic said.

In addition, Banyan will use EDD as a "building block" for future applications. Possibilities include electronic distribution of Banyan software via the service and EDD services for remote laptops and telecommuting users, Wolff said. For example, when the user plugs in the laptop after a trip, "the service automatically figures out where the data [coming in from the laptop] goes," he said.

Banyan will roll EDD out across its three major network service platforms, Wolff said. Support for Enterprise Network Services and native Vines will be in the initial release, with Vines for Unix likely to appear in a subsequent release. Pricing was not available.

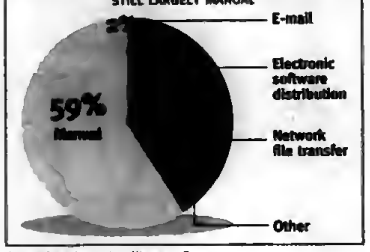
The initial release will support server-to-server distribution and collection of data. Users can initiate EDD services from the various client systems supported by Banyan services; however, distribution of data to and collection of data from client disks will wait for a later release.

Networld note

IBM and Banyan announced a formalized in-house product certification program last week. The program calls for IBM to operate a facility in Boca Raton, Fla., to test and ensure that Banyan services run on new IBM hardware platforms. In addition, Banyan announced new LAN adapter and router certification programs for its services.

Open field

VARIOUS VENDORS, INCLUDING BANYAN, ARE AIMING FOR A DATA DISTRIBUTION SECTOR THAT IS STILL LARGELY MANUAL



Source: Meta Group, Inc., Westport, Conn.

Wireless

CONTINUED FROM PAGE 51

coming pervasive — though largely for voice — because its underlying technology allows ubiquitous service along with small, unburdensome user equipment (see "Alphabet Soup" page 51).

PCS also suffers from "market inertia," said Daniel Briere, president of TeleChoice, Inc., a consulting firm in Verona, N.J. He said PCS will not be widely available for two to three years.

"Even by the time of the FCC auction" for PCS spectrum in May 1994, "millions of people will have cellular phones and thousands of people will have cellular modems," Briere said. PCS would mean displacing all that gear, he pointed out.

On CDPD, for which Version 1.0 of the protocol specification was released in July, Thomas Nolle, president of CIMI Corp., a consultancy in Voorhees, N.J., said, "I don't believe its bandwidth would be sufficient for laptop applications, and the delay associated with it is also likely to be too high."

Nolle said he was skeptical about the potential of the other technologies as well.

Senior editor Ellis Booker contributed to this article.

Up in the air

Early users of wireless technology report the following goals and experiences:

• **CDPD.** While there are no official CDPD users today, UPS uses CDPD-like packet-data-over-cellular networks to the tune of 510,000 to 520,000 calls per day.

A custom solution involving 55 cellular carriers and its own private terrestrial packet network, UPS' TotalTrack allows 50,000 UPS personnel in the field to communicate package and signature information back to the company's data center in Mahwah, N.J. Two-way messaging applications, allowing trucks to send and receive other sorts of messages — such as the directions to a customer location — are also in the works.

According to Douglas Fields, vice president of telecommunications, UPS is watching the commercial plans for CDPD carefully and could switch to this network with little more than some software modifications.

Fields is unabashedly bullish about the future of wireless data. "Within five years, we'll see the same applications that are on the terrestrial wired network deployed on a broad scale on wireless networks," he said.

The variety of wireless solutions — CDPD, packet radio, paging and satellite — will remain, Fields said. He said he believes different types of networks (some optimized for reliability, others for low cost) will mean "many of the players in the race today will be at the finish line."

• **Packet radio.** ADP Automotive Claims Services in San Ramon, Calif., has been struggling to find a wireless link as the icing on the cake for its pen-based mobile application for claims adjusters. An innovative laptop application that allows adjusters to drill down in to the anatomy of a car schematic to get repair costs, correspond in real time with host databases and cut checks on the spot requires a packet-based wireless service to make the application as convenient as possible, said Gerhard Blendstrup, senior vice president.

However, the company's trials with the Ardis network have hit snags with unpredictable delays and insufficient geographical coverage that discourage adjusters from using wireless technology. ADP is now testing the RAM Mobile Data network but has officially put the wireless component on hold until the technology is more mature, Blendstrup said.

The General Services Administration, Region 3 in Philadelphia had a more positive experience during a beta test of a wireless packet network this summer. In the test, RAM Mobile Data's network was integrated with the federal agency's CC:Mail electronic-mail application.

"It fit in perfectly with our remote users," said Bill Horst, chief of communications at the operations branch.

Horst valued the transparency of the application: "If you're at your desk in the building sending E-mail to someone else, you've no idea where they are. . . . That's the way it should be." Messages were routed back and forth between wireless users and those on the home-office LAN. No extra addressing was needed to send E-mail to remote users.

• **Paging.** Some organizations are finding one-way paging to be a more timely and economical alternative to faxing. For example, Ethos Corp., a software maker in Boulder, Colo., recently began bundling the Embare paging protocol into its commercial mortgage processing software so that financial firms can electronically deliver mortgage rates to nearly 2,000 brokers every day. Brent Jones, director of technical operations at Ethos, estimated these firms spend nearly $30,000 per month for faxing via a service bureau.

"Our initial estimate is that these companies would spend $10,000 or under by disseminating information via Embare instead," he said.

More importantly, he said, files broadcast across the Embare network can be downloaded as data that can be manipulated — a capability that could save brokers an hour and a half each day.

— Ellis Booker and Joanie M. Wexler

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Communications link

Information highway paved to the Midwest

By Ellis Booker

Now that the Clinton administration is paving the way for its information highway, the burden falls on state governments to figure out how to build crucial statewide networks.

That issue was one highlight of the first Midwest Summit on Information and Technology in Indianapolis, featuring a roundtable with the governors of Indiana and Ohio and senior telecommunications officials, users, a regulator and a consumer advocate.

Role undefined

The roundtable also underscored the fact that state government's role in promoting the Clinton administration's information highway initiative has yet to be fully articulated.

Among other questions, the group wrestled with whether private or public funds should be used to create statewide networks and how to ensure universal access for all constituents in the state.

The group also addressed the question of how geographic regions such as the Midwest can differentiate themselves via their computer and network infrastructure, even as business activity is increasingly distributed, thanks to those same technologies.

"Money and ideas move quickly ... but infrastructure is regional, as is the work force," said Indiana Governor Evan Bayh. Bayh suggested that decisions about where to locate a business will increasingly be dictated by the caliber of the local work force and that educational and training technologies available in a region are vital.

Picking up on this theme, Chicago-based Ameritech Corp. announced at the summit its commitment of $2.6 million in two years to support a regional initiative to link schools to on-line resources.

The "Learning Village" project will connect a total of 50 schools in Illinois, Indiana, Michigan and Ohio to databases, electronic newsletters and the Internet. Teachers and administrators in the four states will also be able to access more than 500 projects and lesson plans that are organized by grade level and subject.

Asked how state government should promote information technology, both Bayh and Ohio Governor George V. Voinovich argued that government should not pick "winners and losers." They suggested instead that the government act as a catalyst for private industry's research and development efforts in the region by encouraging partnerships and projects.

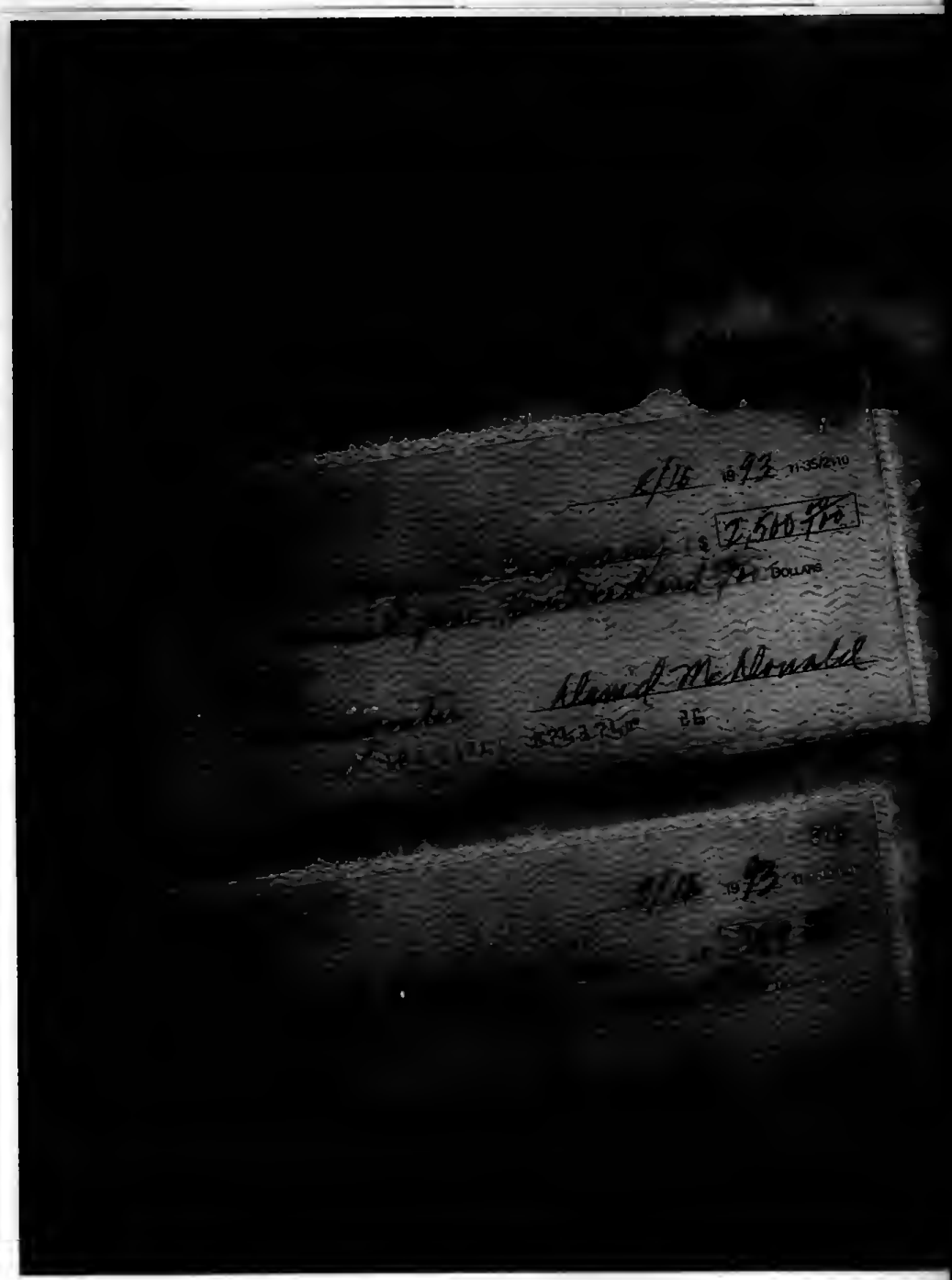
Focus is on outcomes

For instance, rather than dictate the specific kinds of technologies that should be installed in Indiana's high schools, "we can set world-class standards, focus on outcomes," Bayh said. The choice of which technologies to use to accomplish these goals would be left up to committees, schools and perhaps individual teachers, he said.

Government can also act as a clearinghouse for available technologies, Voinovich said. But others on the panel said the pace of technology and the marketplace would make this role unworkable.

The two-day Midwest Summit included approximately 20 technology demonstrations from computer hardware vendors, carriers, universities and integrators specializing in educational and health care applications.

> **"Money and ideas move quickly... but infrastructure is regional, as is the work force."**
>
> *— Indiana Governor Evan Bayh*



InterConnections, Inc. has announced Version 3.0 of its Terminal Emulation Services (TES).

According to the Bellevue, Wash., company, TES allows PC users on a Novell, Inc. NetWare LAN to log on to Digital Equipment Corp.'s VAX minicomputers and run VMS applications.

The product consists of two components: the host software, a driver on the VAX that coordinates TES communications between the LAN and VMS; and the client software, a terminate and stay resident program on the LAN workstation that provides a virtual connection to the VAX.

Key to this release is its ability to provide multiple live Windows sessions.

TES license agreements begin at $1,000 for five users. An unlimited license starts at $2,000.

▶ *InterConnections*
(206) 881-5773

Relay Technology, Inc. has introduced Relay/PC Gold for Windows 6.0, communications software.

According to the Vienna, Va., company, this release adds support for the TCP/IP open networking protocol and expanded Windows support, with updated ease-of-use and data transfer features.

The product provides comprehensive connectivity to stand-alone or LAN-based PCs, bulletin boards, on-line information services, midrange systems and mainframes.

Relay/PC Gold for Windows features file and data transfer; 3270 emulation for accessing MVS, VM and VSE applications; and forms of terminal emulation for PCs interfacing to other hosts.

Support is included for TCP/IP connections through Microsoft Corp., Novell, Inc., Ungermann-Bass, Inc. and file-transfer protocol stacks.

A single copy costs $399.

▶ *Relay Technology*
(703) 506-0500

Digital Communications Associates, Inc. has announced the implementation of the second phase of its Universal Communications Architecture and introduced QuickApp for Windows 1.1.

According to the Alpharetta, Ga., company, QuickApp for Windows 1.1 is a point-and-click communications middleware development tool that insulates corporate developers from the complexities of standard communication application programming interfaces.

The product creates a "navigational map" of the host application that is stored on a PC file. The file enables users to identify input fields and data and to navigate to host application screens and host data fields.

Key features include support for Microsoft Corp.'s Visual C++ and Powersoft Corp.'s PowerBuilder.

QuickApp for Windows 1.1 costs $995.

▶ *Digital Communications Associates*
(404) 442-4000

Crystal Point, Inc. has introduced Outside View 3.0 for Windows, its PC-to-host connectivity product.

Outside View for Windows now features support for both asynchronous and IBM mainframe connectivity.

According to the Bothell, Wash., company, Outside View 3.0 for Windows also includes CommBasic, the first Basic macro language to be embedded in a PC connectivity program.

Additionally, the product has a TN3270 feature that gives Windows users access to IBM 3270 mainframe applications and data across TCP/IP networks.

Remote communication features, such as an automatic dialer, log-on macros and a phone directory, are also provided.

The product costs $349.

▶ *Crystal Point*
(206) 487-3656

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IBM unfurls ImagePlus client/server plans

HP/UX, Solaris and Windows among non-IBM platforms targeted

By Thomas Hoffman
NEW YORK

IBM used the receot Imaging Expo '93 trade show as a launching pad to announce the long-awaited client/server strategy for its flagship ImagePlus/2 and ImagePlus Image and Records Management (IRM) documeot storage and retrieval software.

In addition to scheduled ports of ImagePlus/2 to its MVS, OS/400, AIX and OS/2 operating environments in the next six to 12 months, IBM plans to deliver client versioos of the imaging software to competitive platforms such as Windows 3.1. Server ports to Unix environments supported hy Hewlett-Packard Co. and Sun Microsystems Computer Corp. could arrive hy late t994.

Although IBM customers complaioed that the vendor's client/server direction for ImagePlus/2 took too long to surface, several prospective ImagePlus users said the t994 delivery dates dovetail with tbeir plans to implement imaging systems.

"IBM should have laid out its plans for AIX and other environments further back," said Dick Kane, a departmeot head for technical infrastructure and support at ITT Hartford Life Cos. However, Kane said he expects to evaluate IBM's ImagePlus/2 offerings for its version of the Unix System V Release 4 operating system.

ImagePlus/2, already available on IBM's OS/2 2.0 server platform, is scheduled to be ported to a server version of the MVS mainframe environment sometime in the first half of 1994. Server ports to its OS/400 and AIX environments will follow later next year, according to Ronald L. Hankinson, director of IBM's ImagePlus systems developmeot.

IBM also plans to deliver a client version of ImagePlus/2 for its OS/2 2.0 operating system by early next year, to be followed shortly by a Windows port because of strong customer demand for a desktop version.

"The market tells us that a Windows 3.1 [version nf ImagePlus/2] is an absolute requirement," Hankinson said.

Expecting positive reaction

Analysts anticipate positive user reaction to the ImagePlus/2 ports.

"The real sweet spot we bear from clients is IBM's plans for Windows client and Unix server ports," noted Mike Howard, a vice president and service director in the office information systems group at Gartner Group, Inc. in Stamford, Conn.

IBM's plans to port ImagePlus/2 and IRM to its AIX environment shonld make it easier for the vendor to complete follow-on ports to HP's HP/UX and Sun's Solaris Unix platforms, said Scott McCready, principal at IDC/Avante Technology, s Framingham, Mass., market research firm that specializes in imaging and work-flow

ImagePlus/2, *page 65*

Johanna Ambrosio

Blue blues

By ignoring the small to medinm-size mainframe customers, IBM is hlowing a huge opportunity. These accounts often don't even know who their IBM salespeople are at this point. As a result, they wind up dealing with other vendors for peripherals, workstations and assorted gear.

More important, when these customers are ready to swap out their 4381 or 3090 for a new computer setup (read: client/server), they have absolutely no reason to go with IBM. Any loyalty that may have built up over the years has been completely shattered.

Consider the following examples of former IBM customers who have, for various reasons, chosen other suppliers. Although some of the people asked to remain unidentified, they all are real.

. . . . . .

"At one time, we had everything IBM," says Frank Monteleone, information technology director at NutraSweet Co. in Deerfield, Ill. "Now, you look around, and we don't have anything with their name oo it. Microsoft has more of an impact oo my day-to-day life than IBM."

. . . . . .

A pharmaceutical company in New Jersey hrought XL Datacomp gear into its all-IBM shop because at first tbe IS director couldn't even get the local IBM hranch to bid on the $15 million contract. "It took me three or four tries, but I finally got them to respond," he recalls. "They sent a proposal when all the other vendors sent their top regional people. And tbeir proposal was 20% to 30% higher than the others."

While be would have paid a small premium to avoid the complexity of having to manage multiple suppliers, this man says, "I just couldn't justify that price to my management."

. . . . . .

"I couldn't even tell you the name of my IBM sales rep, but at one time we were the largest IBM customer in Akron," said William Eager, president and CEO of FBOC Services Division, the IS branch of First Bancorp of Ohio. He bought his most recent storage devices from Storage Technology Corp. "We'd be happy to talk to IBM about their storage gear, but no one's been in to see me for about three years."

Ambrosio, *page 64*

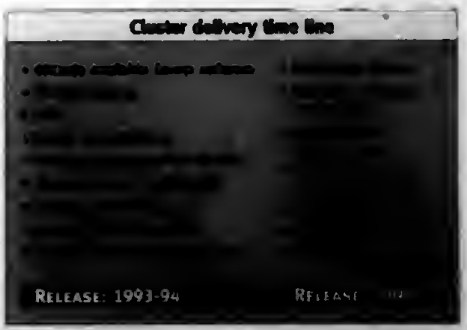
DEC extends OSF/1 functions

By Craig Stedman and Jean S. Bozman
MAYNARD, MASS

A key component of Digital Equipment Corp.'s wide-ranging product introduction tomorrow will be Version 2.0 of the DEC OSF/1 operating system, which Digital said will include full support for running Unix System V Release 4 applications and system management utilities.

Due to ship in January, DEC OSF/1 2.0 also provides C2-level security and an integrated Open Software Foundation (OSF) Motif Version 1.2 user interface, according to Digital officials. It will also be the base release on which npcoming symmetric multiprocessing (SMP) and clustering capabilities will be layered.

Limited shipments of an SMP version of DEC OSF/1 are scheduled to start in February, with general availability expected next July, Digital said. Clustering functionality that goes beyond the workstation farms now supported by DEC OSF/1 will also be added beginning in 1994 (see chart).



Big cog in the wheel

With Digital holding steady as one of the OSF/1 kernel's few adherents at this point, the company acknowledges that the Unix System V Release 4 support being added in DEC OSF/1 2.0 is an important cog in its renewed attempt to shed its standing as a commercial Unix also-ran [CW, Oct. 4].

"For users or programmers that are used to System V, and system managers as well, this will solve that," while enabling them to take advantage of DEC OSF/1's 64-bit structure, said Andrew Feit, marketing manager for Digital's workstations and servers group.

Digital already provides System V Release 3.2 compliance in the current DEC OSF/1 1.3 release, which began shipping in July. The Unix System V Release 4 features will extend that to full conformance at the application, management utility and user interface look-and-feel levels, Feit and other executives indicated.

The Unix System V Release 4 environment is supported through a so-called "habitat mechanism" that allows alternate sets of application programming interfaces to reside on top of the OSF/t kernel. Most Unix System V Release 4 applications should run under DEC OSF/1 2.0 after being recompiled without any code changes required, Digital said.

Judith Hurwitz, president nf Hurwitz Consulting Group, Inc. in Watertown, Mass., said the Unix System V Release 4 compliance should make concerns about DEC OSF/1's compatibility with Unix releases from nther vendors "a nonissue." And some users said they see the

DEC OSF/1, *page 64*

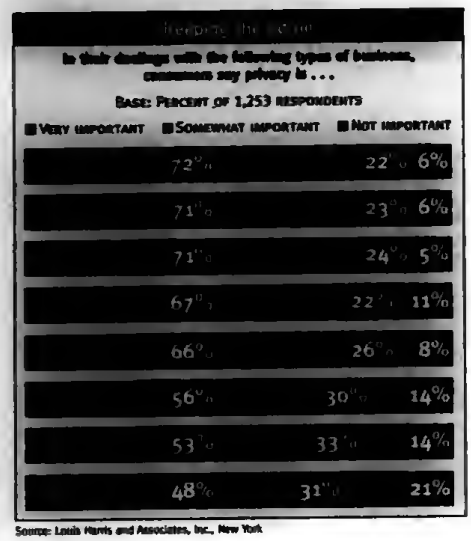
Records privacy concerns grab citizens attention

By Mitch Betts
WASHINGTON

The latest national opinion poll on the privacy of consumer records is a wake-up call for American businesses: Consumers said they are much more likely to patronize businesses with policies that safeguard the privacy of sensitive information.

The survey conducted by Louis Harris and Associates, Inc. found that, for the first time, the majority of adults in the U.S. (53%) are "very concerned" about the confidentiality of their records.

The poll results indicate that "privacy is now a front-burner issue" for American consumers and will influence their purchasing habits, said Humphrey Taylor, chief executive officer of Louis Harris and Associates in New York.



Source: Louis Harris and Associates, Inc., New York

Money and health matters

A follow-up poll showed that Americans expect their financial and medical records to get the most protection. Consumers ranked banks, health insurers, hospitals and credit-card companies as businesses needing strict privacy codes.

The message is that companies can gain a competitive edge by developing and advertising privacy-sensitive policies, according to Alan F. Westin, a privacy expert at Columbia University in New York. Westin directed the study and published the results recently in a newsletter, "Privacy and American Business," in Hackensack, N.J.

Some companies, such as Pacific Bell in San Francisco, have already received the message and developed information privacy guidelines. Likewise, Bob Chiaramonte, vice president for information systems at Eon Corp., a Reston, Va., company that develops home shopping and other interactive television services, said his firm will keep consumer information confidential and just pass along the orders to retailers.

Privacy advocates have long argued that companies should adopt a "code of fair information practices" that promises to allow consumers to see and correct their records and prohibits the release or sale of consumer data to third parties unless the consumer agrees.

The challenge is to reconcile that advice with another hot business trend: the collection of consumer and lifestyle data for the purpose of narrowly targeting consumers in marketing campaigns.

Good timing

The poll also comes at a time when the Clinton administration is grappling with the privacy issue in a variety of contexts, including the electronic medical records envisioned for health care reform [CW, Aug. 9]. Moreover, buried in the White House's "reinventing government" report is a line recommending creation of a federal Privacy Protection Board to issue privacy guidelines.

Meanwhile, the Internal Revenue Service has responded to reports of employee snooping in tax records by creating the post of privacy advocate [CW, Aug. 9]. Whoever fills the executive-level job, which is expected to pay $92,900 to $107,300, will investigate privacy problems and incorporate privacy principles into the agency's massive computer modernization project.

DEC OSF/1 2.0

CONTINUED FROM PAGE 63

capability as a positive move for Digital, at least image-wise.

"I would be hard-pressed to tell you about a business situation that I need that for right now, but at the philosophical level of things, it's good news," said Frank Brake, director of international operations for technology business development at Newport News Shipbuilding and Drydock Co. in Newport News, Va.

"That's a step in the right direction," agreed George Reid, MIS director at Sanford C. Bernstein & Co. in New York. However, he added that when it comes to the Unix market, "the issue on the DEC side is whether the train has already left the station."

Bernstein, which has about 200 workstations running under Digital's earlier Ultrix derivative of Unix, plans to standardize on Microsoft Corp.'s Windows NT operating system on the desktop, Reid said. The company "looked very eagerly" at DEC OSF/1 in the past, but now that Digital is getting the necessary functionality in place, NT provides a better alternative, he added.

Useful but limited

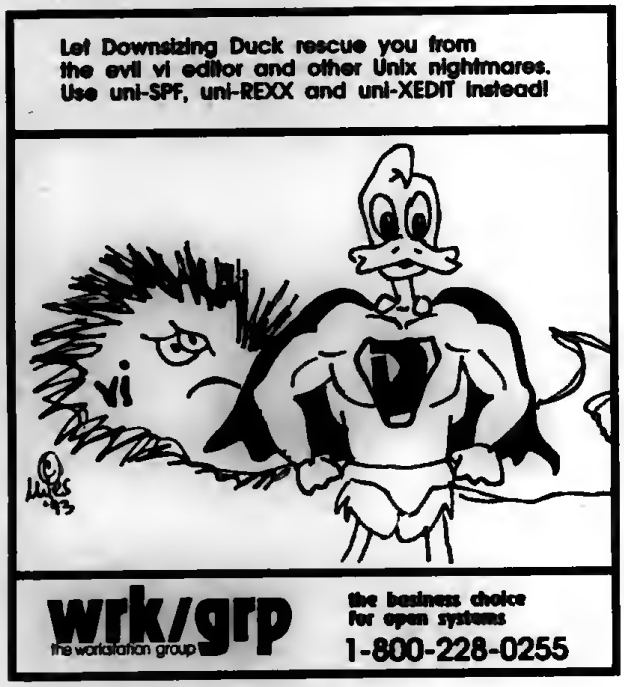
Wes Melling, an analyst at Gartner Group, Inc. in Stamford, Conn., said DEC OSF/1 2.0 and accompanying layered software being introduced this week should start making the operating system useful for commercial applications. But the new capabilities will not "cover the gamut of everything people are looking for," Melling added. "We don't think they get to parity [with other Unix vendors] with this announcement."

Digital's Unix push also comes too late for Mohamed Ellozy, director of research information services at the Dana-Farber Cancer Institute in Boston. The institute, an Ultrix user that also has Sun Microsystems, Inc. hardware, will "almost certainly" become an all-Sun shop over time, he said.

Ellozy said he is satisfied with Digital's products and customer service, but its previous arm's-length embraces of Unix have left him wary of doing business with the company. "The gyrations of the past few years have turned us off very substantially," he said.

SMP and clustering are also key technologies for making DEC OSF/1 useful in commercial environments, according to both Digital and analysts. Support for six-way multiprocessing should be in place by mid-1994, while cluster functionality will be added in the next three years, the company said.

Mark Silverberg, Digital's commercial Unix marketing manager, said he hopes in 1994 "to get to the point where we're recognized as competitive in Unix clustering." But DEC OSF/1 will not fully match the company's OpenVMS clustering capabilities until 1996, he added.



Ambrosio

CONTINUED FROM PAGE 63

The list could go on. A California life insurance company put out a $50 million bid that IBM did not respond to, although the IS director hoped it would. A California manufacturing concern is installing Hewlett-Packard computers as its client/server direction because it did not know what IBM's most recent story was.

"Look," one IS director says. "If IBM came right out and said they don't want my business because I'm too small for them, I could understand that as a business decision, and I would live with it. But they keep putting out mixed signals about their intentions for this market."

True, these customers are not Citicorp or American Airlines, but they're not exactly mom-and-pop corner delis, either. These IS executives are realistic businesspeople, and they don't want IBM representatives to live at their sites. Still, a sales call once a quarter should not be too much to ask.

Ambrosio is a *Computerworld* senior editor, systems and software. Her MCI Mail address is 599-8003.

Survey shows rightsizing right on

By Gary H. Anthes

Three quarters of Fortune 1,000 information systems managers surveyed recently said they are "rightsizing" their IS infrastructure or planning to do so, and of that 75%, the majority said cost reduction was the driving factor.

However, of those respondents who said they had no plan to rightsize, the majority cited lack of cost justification as the main reason.

That apparent contradiction came to light in a survey of 105 companies in a cross-section of U.S. industry by Market Vision, Inc. in Dunedin, Fla.

Market Vision defined "rightsizing" as any combination of "downsizing, smartsizing and other industry buzzwords." In essence, it referred to the selection of new computing standards and architectures in response to new technology, budget pressures, changing business or other forces.

Asked how they expected to save money through rightsizing, they most often cited a reduction in development and maintenance backlogs (see chart above).

Asked about the downside, respondents most often cited the need to retrain staff (see chart at left).

Half the rightsizers said they would re-engineer the business processes underlying their applications as part of the move to new platforms. Twenty-eight percent said they would rewrite the applications, and 21% said they would port the old code as is.

The lack of unanimity on how rightsizing would affect costs was explained in part by how IS managers felt it would affect various parts of their shops. For example, 59% said rightsizing would reduce the maintenance backlog, but 9% said it would increase the backlog.

Market Vision sent a strong message to its clients, who include many major software vendors. Almost three quarters of survey respondents said vendors do not yet offer enough tools to help implement a rightsizing strategy.

Downside

What are some of the negative consequences of rightsizing?

Retraining staff	14%
Adjusting to change	13%
Network complexity	11%
Financial issues	11%
Decentralized control	11%

Response base: 105 companies (Multiple responses allowed)

Source: Market Vision, Inc., Clearwater, Fla.

What important changes have you seen or expect to see as a result of your rightsizing strategy?

Reduced development backlog	
Reduced maintenance backlog	
Reduced software budget	
Reduced downtime	
Reduced staff	
Increased software budget	
Increased downtime	
Increased staff	

Response base: 105 companies (Multiple responses allowed)

ImagePlus plan unfurled

CONTINUED FROM PAGE 63

systems. McCready said IBM should be able to tap into vertical markets where HP/UX and Solaris systems have gained strong footholds such as on manufacturing shop floors (HP/UX) and at pharmaceutical and brokerage firms (Solaris).

And while McCready agreed that IBM should address OS/2 client ports first, a Windows-based port is a logical follow-on, he said.

"You can argue all you want about the technical superiority of OS/2 vs. Windows, but the market is saying 'Windows,'" McCready said.

Still, the initial ImagePlus/2 ports are intended for IBM environments, and users at several large IBM shops have expressed interest in them. For example, CSX Technology, Inc. in Jacksonville, Fla., plans to evaluate an MVS server and OS/2 client ImagePlus/2 combination that would help it store and retrieve personnel records and invoices used for shipping once the software becomes available next year, said Douglas E. Underhill, assistant vice president of technical planning at the technology arm of the rail transportation firm.

But before Underhill assesses the package, he wants further details from IBM about how the vendor plans to tackle compression issues for the direct-access storage devices needed to handle the high-bandwidth images that CSX Technology would likely create with the software.

"We, like other firms, are looking at escaping paper, but we've recognized that when you stop using paper, you have to be able to store and recreate documents easily," Underhill said.

Imaging Expo '93

Work-flow aids lead way

By Ellis Booker

Optika Imaging Systems, Inc. in Colorado Springs recently led the charge among document imaging vendors that beefed up work-flow offerings at the Imaging Expo show.

Optika announced enhancements to its PowerFlow work-flow management software. Chief among the improvements are a business modeling component that allows programmers or end users to graphically design and automate work-flow steps.

Many software categories, from electronic mail to stand-alone utilities, are adding work-flow features. But "imaging companies are much farther ahead since they've had a work-flow market, with users who can tell what they're looking for," said Bruce Silver, vice president at market research firm BIS Strategic Decisions in Norwell, Mass.

Simple work-flow products merely route and track documents between work queues. More sophisticated systems, he said, are beginning to act as integration hubs, passing data among different applications in the background and then presenting users with the results in a standard format.

Optika's software comprises PowerFlow Builder, a graphical design tool; PowerFlow Manager, a graphical user interface-based administrative tool; and PowerFlow Workplace, a graphical desktop running under Windows.

The software will begin shipping in the fourth quarter, with a suggested list price of $9,995 for a five-user system. Multiuser configurations of 50, 100, 250 and up will also be available and priced accordingly, Optika said.

Other document imaging vendors introduced the following products:

- **Intrafed, Inc.**, a systems integrator in Bethesda, Md., **Excaliber Technologies Corp.** in McLean, Va., and **Calera Recognition Systems, Inc.** in Sunnyvale, Calif., introduced a high-volume, turnkey production imaging system called Iceworks, capable of producing 10,000 pages per day. Prices will start at $129,900.
- **Image Business Systems Corp.** in New York announced support for OS/2 and NCD X Window System terminal desktops.
- **Sigma Imaging Systems, Inc.** in New York announced the integration of its OmniDesk imaging software with Notes.
- **Laser Data, Inc.** in Tyngsboro, Mass., showed the DocuData and DocuFlow work-flow software, built on top of an ActionWorkflow System from Action Technologies, Inc. in Alameda, Calif. Laser Data will also resell the Action Technology product directly.
- **IBM** demonstrated its homegrown work-flow system, FlowMark, showing the integration between the work-flow product and IBM imaging products.
- **IBM and Excalibur** announced a cooperative software agreement under which IBM will distribute Excalibur's client/server PixTex/EFS document imaging software for IBM's RS/6000 platform.

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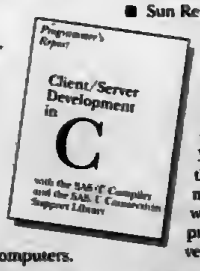

advanced protocols to work in your own applications:

- X Window System version 11, release 5 (X11R5)
- Sun Remote Procedure Call (RPC), release 4.0
- Sun Network File System (NFS)

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HP 160	$136,530	82.0	$1,665
DEC 4000/610	$131,728	94.6	$1,392

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Briefs

Clinton honors innovators

President Clinton awarded Kenneth H. Olsen, founder and former president of Digital Equipment Corp., a National Medal of Technology "for his contributions to the development and use of computer technology and for his entrepreneurial contribution to American business." A medal also went to Amos E. Joel, a retired engineer from AT&T Bell Laboratories who was a pioneer in telecommunications switching technology.

Xerox may outsource IS

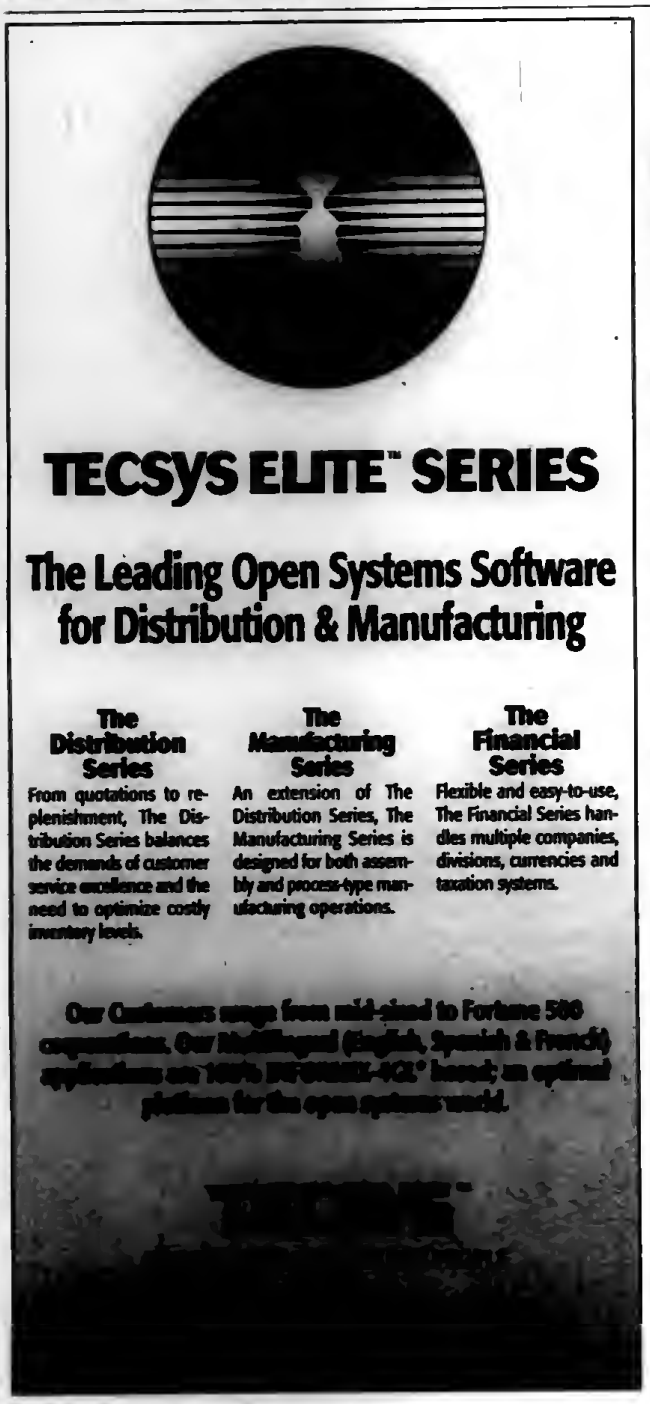
Xerox Corp. recently confirmed the long-standing rumor that it is considering outsourcing some or all of its information technology. The $18 billion company said it recently sent requests for proposals to four vendors but declined to identify them. A spokesman said Xerox will take "several months" to make a decision and that the company may decide to keep operations in-house. Xerox, which lost $1.02 billion in the year ending Dec. 31, 1992, said outsourcing could help it save money, leverage technology and free management for core tasks. The company has about 3,500 information systems employees worldwide. The spokesman said it is too early to determine how an outsourcing deal would affect the firm.

Digital unit goes Far East

Digital's storage business unit plans to establish a manufacturing plant in Indonesia that will make thin-film heads for disk drives. The 100,000-sq-ft facility is scheduled to begin volume production in mid-1994, Digital said. The company, which will use the heads in its own disk drives and also market them to other drive vendors, wants to expand storage manufacturing into the Far East to take advantage of lower cost structures and wages there.

Credit-card unit sold

First Financial Management Corp., an Atlanta information services firm, has signed a pact to acquire Brown-Forman Enterprises, a merchant credit-card processing unit of Brown-Forman Corp. in Louisville, Ky. Terms of the agreement were not disclosed.



BMC Software, Inc. has announced Version 2.3.07 of Data Packer for DB2, a hardware compression emulation product.

According to the Sugar Land, Texas, company, the product enhances a customer's ability to adopt hardware compression across the enterprise by making it possible to exploit and emulate the hardware compression to be provided in IBM's ES/9000 Models 9021 and 9121 mainframe computers.

This release also gives CPUs that have not been upgraded the ability to compress and expand hardware-compressed data.

An assortment of compression techniques is included.

Data Packer for DB2 is priced by CPU level, starting at $8,000 for a perpetual license.

▶ *BMC Software*
(713) 240-8800

Convex Computer Corp. has introduced the DataSeries line of data management products.

Consisting of hardware, software, robotic tape systems and support services, the DataSeries is based on Hewlett-Packard Co.'s Apollo 9000 Series 700 workstations at the low end. For high-throughput, high-capacity applications, DataSeries is based on Convex's C Series systems, according to the Richardson, Texas, company.

Hierarchical storage management software that transparently moves data between disk and robotic tape is included.

Pricing is from $150,000 to $5 million.

▶ *Convex Computer*
(214) 497-4000

BGS Systems, Inc. has introduced its Best/1 for Unix software.

According to the Waltham, Mass., company, Best/1 for Unix offers facilities to centralize the performance and capacity management functions in distributed environments.

Best/1 for Unix integrates with the BGS Performance Assurance framework to provide capabilities such as projecting future requirements, tracking long-term performance, solving day-to-day performance problems and reporting to management and users on past, present and future performance to support recommendations and justify expenditures, according to the company.

An enterprise with 50 workstations and servers can license Best/1 for Unix for approximately $1,000 per node.

▶ *BGS Systems*
(617) 891-0000

Four Season Software has announced a graphical version of 4S-Report, a report writer for end users and application developers.

According to the Edison, N.J., company, the product can generate queries and create complex, professional reports that run on MS-DOS, Unix (including OSF/1) and VMS.

Users can create reports that access an assortment of databases, including those from Oracle Corp., Sybase, Inc., Informix Corp. and Teradata Corp., as well as C-ISAM, Cobol and ASCII files.

Key features include interactive WYSIWYG creation of reports, point-and-pick data dictionary fields for placement on reports; point-and-pick application of selection criteria; context-sensitive, pop-up help at every level; and reports designed as sets of modular, linked blocks.

Pricing for 4S-Report ranges from $300 to $37,000, depending on the platform and operating system.

▶ *Four Season Software*
(908) 248-6667

Product shorts

Chi/Cor Information Management, Inc. has announced the Deduction Management System, a software tool designed for IBM's AS/400. The software tracks invoice deductions and automates follow-up procedures. Users can identify internal errors, shipping problems, seasonal trends and customers who abuse write-off policies. Cost: $9,500 to $75,000. Chi/Cor Information Management, Chicago (312) 322-0150.... **Lattice, Inc.** has introduced Lattice Client Server Remote, an AS/400 database access utility that lets PC applications dial into an AS/400 and directly access records and files. The product eliminates the need for terminal emulation, protocol converters, PC support and ASCII workstation controllers. Cost: starts at $150. Lattice, Downers Grove, Ill. (708) 769-4060.

Bank vaults into world of objects

Tools spell success in distributed application project

By Tim Grantham

Building distributed applications with object-oriented development tools is not for the faint-hearted. Yet it is probably the only way reliable, maintainable distributed applications can be built, said Amarjeet Garewal, vice president and senior systems architect at BankAmerica Corp.

Three years ago, Garewal began investigating how Bank of America, with a data operation based in Concord, Calif., could manage the configuration of its California Data Network, an SNA network connecting numerous IBM mainframes, 25,000 IBM PCs and 1,500 OS/2 LANs at more than 1,000 sites across the state.

In addition to managing the network configuration, the bank needed a way to manage the complex, highly dynamic configuration of software on each network node.

Speaking in Toronto at the recent Executive Symposium on Object Technology, Garewal said the management system had to minimize its demands on each branch's limited bandwidth by being a truly distributed application.

Such an application could use IBM's Systems Application Architecture Advanced Peer-to-Peer Networking protocol to provide program-to-program communications across the network, and it should be created using object technology.

Garewal chose Smalltalk as the implementation language, rejecting C++ partly because he believed it made it too easy for programmers to write non-object-oriented code.

The only Smalltalk tool available on OS/2 in January 1991 was one offered by Digitalk, Inc. in Los Angeles. Garewal bought a copy and found that it provided good performance, incremental compilation and portability across platforms and required no runtime license fee.

Winning corporate approval for a project dependent on tools with little track record was complicated by the fact that conventional methods for determining return on investment were unavailable, Garewal said. To win their trust, Garewal promised to demonstrate working prototypes to senior management every month.

Smalltalk is at the core of the Network Configuration Facility

Garewal did not bother looking for object technology experts for his development team. Instead he focused on those candidates who could adapt quickly to change, who had experi-

Bank, *page 76*

Oracle's CDE draws praise, suggestions

Users offer ideas for improving tool set

By Kim S. Nash
REDWOOD SHORES, CALIF.

Oracle Corp., now in full production with its Cooperative Development Environment (CDE) tool set, is winning praise from early CDE users and attendees at the recent International Oracle Users Week, who noted the steps Oracle has taken to make the tools more usable, such as supporting Windows.

But parts of the 14-product CDE set still need work, the users said.

CDE is a set of application development aids, in production since late August, that range from report writers to code generators to a computer-aided software engineering (CASE) repository. Some of the tools existed before Oracle invented the CDE moniker last year, while others, such as OracleBook, have been created since then.

The item that should top Oracle's "to do" list, users said, is assuring customers that CDE products have been thoroughly tested against Oracle 6 — not just the Oracle 7 database.

"We've been working on this issue for a few months now but have seen no definitive Oracle response," said Michael Abbey, chairman of Affinity, a special interest group of major Oracle database, applications and CDE users.

"Telling customers to upgrade to Oracle 7 is not a solution," Abbey said, because "a lot of us aren't ready to move to 7 as quickly as we're ready to use CDE." Cost is an issue; so is the time it takes to convert databases and applications to the newer version, he said.

Nevertheless, CDE may force Oracle 7 upgrades at some shops. "We do have a beta copy of CDE tools right now, which is part of the reason we want to move to 7," said Dave Heck, manager of the information engineering services unit

Oracle, *page 72*

New features in Oracle Forms 4.0, the linchpin of Oracle's CDE tool set, include the following:

- **Graphical widgets, including check boxes, radio buttons and icons.**
- **Two methods for accessing data in non-Oracle databases.**
- **New terms, such as "canvas" and "stacked canvas" instead of "page" and "popup page," used in Forms 3.0.**
- **More understandable documentation, at least according to one consultant with extensive experience.**

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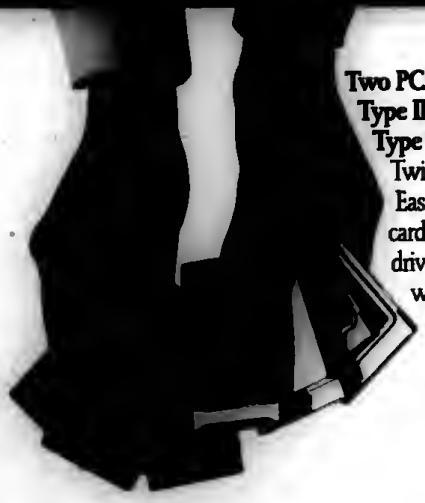

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Apple's AOCE gets nod

Plans to incorporate technology under way

By James Daly
CUPERTINO, CALIF.

Apple Computer, Inc. received a vote of confidence for its long-awaited Apple Open Collaboration Environment (AOCE) last week as nearly three dozen third-party software developers announced products designed to take advantage of the nature of the newly introduced technology.

AOCE is a set of application programming interfaces that promise to tie together the strands of voice mail, fax, electronic mail and remote paging into an integrated communications fabric.

Developers, particularly those showcasing speech recognition technologies, had a lot to talk about. Articulate Systems, Inc., for instance, is readying a release of PowerSecretary, a speech dictation system with which users can prompt their Macintoshes to perform mundane administrative tasks such as sending faxes and retrieving E-mail.

Milpitas, Calif.-based Octel Communications Corp. demonstrated a gateway that allows users to visually display, access and manage voice and fax messages stored in an Octel voice processing system from a Macintosh.

Useful Software Corp. in Danvers, Mass., was promoting its similar $260 Useful Voice Processor E-mail system, while CTM Development in Geneva, unveiled Voice-Access, which offers remote retrieval and delivery of pager messages.

Coming soon

Apple will dribble out most key portions of AOCE in the next six months. PowerTalk, the new collaboration software, will be available immediately with System 7 Pro, a $149 system software release with communication features geared toward heavily networked corporate Macintosh users. However, the $999 PowerShare Collaboration Server package, which centralizes management of the AOCE services, will not ship until at least December.

Another entry was presented by Axion in Sunnyvale, Calif., which showcased its IMail video-mail software application. When coupled with the ISpy desktop color video/still picture camera and the IMovie capture board, photogenic users can send video E-mail to each other.

Free RAM?

System 7 Pro will require at least 5M bytes of RAM, said product manager Andy Leuta. Apple is exploring promotional deals that would give users free RAM upgrades if they opted for the Pro package.

On the networking side, Caravelle Networks Corp. in Nepean, Ontario, brought out Networks, a network monitoring application. Networks keeps tabs on devices and services on a network and then uses pocket pagers, E-mail, graphics and audible alarms to alert network managers of problems. Networks will cost $995.

Digital Equipment Corp. announced that it will incorporate AOCE technology into its TeamLinks for Macintosh family of products. Digital will use AOCE to provide transparent X.400 message transport and, later on, X.500 directory services to Macintosh mail-capable applications that use AOCE.

Ex Machina, Inc. displayed Notify for PowerTalk, a $149 wireless messaging gateway that allows a PowerTalk-savvy application to send full-text messages to a pocket pager, PowerBook portable or Newton MessagePad.

RSA Data Security, Inc. announced that it has embedded its patented Public Key Cryptosystem encryption technology in System 7 Pro. RSA Digital Signature also allows users of System 7 Pro to verify the author of a given electronic document and verify that a document has not been tampered with.

Real-time news

Mainstream Data, Inc. in Salt Lake City released a PowerTalk gateway for Mainstream Newscast, an information service that delivers real-time news to Macintoshes via FM radio and satellite.

Other vendors unveiling products included Aladdin Systems, which announced its $129 StuffIt Deluxe compression package, and CE Software, Inc., which showcased its QuickMail applications.

Microsoft Corp., Banyan Systems, Inc. and GE Information Services also voiced approval for PowerTalk without unveiling specific products. Microsoft said it will include support for PowerTalk and System 7 Pro in future versions of Excel, Word, Powerpoint and Works.

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G. Total (Sum of E, F1 and 2 — should equal net press run shown in A)	170,579	179,281

I certify that the statements made by me above are correct and complete.

Pat Walker,
Traffic Manager

Oracle

CONTINUED FROM PAGE 69

at Nationwide Life Insurance Co. in Columbus, Ohio.

Meanwhile, Oracle pleased users such as Mark Farnham, president of the Oracle Applications User Group, by recognizing, as he noted, that PCs exist in the application development shop. After it announced CDE, Oracle realized it had failed to provide graphical desktop tools comparable to products such as Gupta Corp.'s SQL Windows, Microsoft Corp.'s Visual Basic or Powersoft Corp.'s PowerBuilder.

So before going full production with CDE two months ago, Oracle switched gears: It would ship a complete set of CDE products for Windows before those for its bread-and-butter Unix operating system.

More than 34% — $281 million — of Oracle's total fiscal 1993 license revenue came from development tools

PC-oriented

Windows editions of CDE offerings "show that Oracle is moving with us into a more PC-oriented development environment," said Farnham, who is also a database architect at Burlington Coat Factory in Lebanon, N.H.

Users might want to pay attention to changes in Forms 4.0, a code generator and linchpin of CDE. For example, Oracle's makeover of Forms into a graphical tool that is itself capable of creating graphical applications means that developers have a longer learning curve in front of them, according to Timo Siniranta, an analyst in Oracle's worldwide technical support group for tools.

Siniranta advised users to triple typical development time allotments for initial Forms 4.0 projects.

Conversions continue

That warning has not scared off users such as James Bennett, vice president of technology at First National Bank of Chicago. The bank is in the midst of converting applications generated with SQL Forms 3.0 to Forms 4.0. Bennett is working on a customer information system that, when complete, will host 600 to 700 users.

"This might sound corny, but CDE is fun to work with," Bennett said, adding that he has experimented with working imaging functions into applications built with CDE products.

No matter what Oracle may do to improve CDE, no vendor can provide for every user's every need, according to Brad Stokes, a database analyst at Syntex, a pharmaceuticals firm in San Francisco.

Syntex uses CDE tools to build applications and also to house companywide business information. Products such as Oracle CASE Dictionary help ensure the company meets rules handed down by the Food and Drug Administration.

Although Syntex is pleased with reports generated with the product, custom queries using extensions to Oracle's SQL are still needed because of the intricate nature of FDA regulations, according to Stokes.

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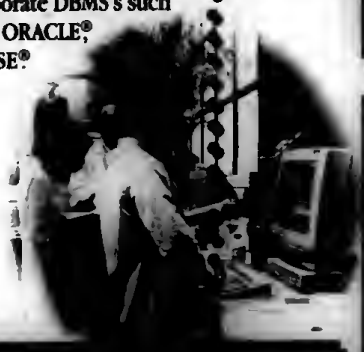

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Bank

CONTINUED FROM PAGE 69

ence with more than one language, who had a conceptual grasp of every aspect of the bank's network and who were willing to work 12-hour days for the duration of the project.

Two were assigned to develop the required Smalltalk representation objects; one looked after the graphical user interface; one produced all the CICS Cobol II code needed to manage transactions and configuration data; and one took responsibility for testing and end-user liaison activities. Garewal acted as chief architect and brought in a mentor for the team, a senior technologist from Digitalk whom he paid $10,000 a week for eight weeks, spread over the six months of the planning and initial development.

The team used no formal methodology for analysis and design and instead developed an iterative development methodology of its own.

It began development in earnest in June 1991. By the end of that year, it had the development infrastructure in place and had defined the problem domain. The next six months saw end users testing a series of ever-more refined development prototypes, a process that produced more than 000 changes in the user interface.

By September 1992, the development documentation had been created, and production system deployment began in October. By the end of November 1992, fewer than a dozen operators were using the new Network Configuration Facility (NCF) to manage the configuration of the entire network.

Not just object-oriented

The NCF architecture required an object persistency manager, which the team created using IBM DB2 and the OS/2 Database Manager. Garewal expressed little patience for those who insist that only an object-oriented database management system has the speed to support object technology applications.

"There is no business problem," he declared, "that cannot be modeled using either a relational database or an object-oriented database."

The team also had to create several other management tools from scratch: object schema, relational schema and object life-cycle management tools were all developed using Smalltalk, while unit-of-work management tools were created using Smalltalk and CICS.

Garewal cautioned other corporate developers approaching object technology to expect high costs for training and tools and a six-month learning curve. He warned of a shortage of tools suitable for team development, managing object life cycles and testing and performance analysis. And the tools that are available, he said, come with inadequate documentation and example code.

On the positive side, he said object-oriented programming systems enabled his developers to create a closer representation of the business problem, reuse prototype code, more quickly develop complex functions and perform simultaneous analysis and development.

Garewal said he was also pleased to discover that the Cobol II code required to link his back-end legacy systems with the Smalltalk-developed components proved easy to write and change.

Grantham is a free-lance writer in Paris, Ontario.

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AutoTester, Inc. has announced AutoTester 2.0, an advanced testing and verification tool for the Windows operating system.

According to the Dallas company, the product was designed to solve the complex problems associated with testing graphical user interface applications, including test synchronization, advanced control querying and manipulation and dynamic window placement and positioning.

Word processing-type editing of tests including features such as cut/copy/paste, find/replace and adjustable fonts are provided with the software.

AutoTester 2.0 costs $5,000 per workstation.

▶ *AutoTester*
(214) 368-1196

V. I. Corp. has introduced DataViews 9.5, a programming tool created for building graphics to monitor and control real-time processes.

This release features Motif Object Dynamics, a software tool that enables Open Software Foundation Motif developers to seamlesaly integrate animated graphics into Motif interfaces.

Users can also construct fully animated interfaces for analyzing, visualizing and regulating real-time financial, industrial or scientific processes.

By eliminating the need for complex coding, the product can reduce development time by up to 80%, according to the Northampton, Mass., company.

A development license for the Unix version of DataViews 9.5 costs $17,700. Pricing for the Windows NT version will be announced during the first quarter of 1994.

▶ *V.I. Corp.*
(413) 586-4144

NobleNet, Inc. has announced RPCware, an addition to the company's remote procedure call (RPC) middleware tools.

According to the Southboro, Mass., company, the RPC compiler generates client and server code for RPCs that can be compiled as Novell, Inc. NetWare Loadable Modules, UnixWare C language executables and DOS/Windows Dynamic Link Libraries.

RPCware uses the transport-independent RPC supported by Novell for both TCP/IP and SPX/IPX protocols.

RPCware is compatible with the earlier versions of RPC supported by Sun Microsystems, Inc.'s Network File System.

Prices range from $995 to $4,995.

▶ *NobleNet*
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Wonderware Corp. has announced a series of products and performance enhancements for its NetDDE connectivity software family.

A suite of software development kits is being offered that enable Unix users to add Dynamic Data Exchange (DDE) and NetDDE capabilities to applications running in the most popular Unix operating system versions, facilitating the exchange of data with other operating environments such as Windows and Digital Equipment Corp.'s VAX/VMS, according to the Irvine, Calif., company.

Enhancements include the addition of Wonderware's fastDDE protocol to all NetDDE software development kits and TCP/IP support.

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Progress Software Corp. has announced the Progress Version 7 developer's version.

The product is a cross-platform application development environment. It is based on the Progress fourth-generation language (4GL), designed for rapidly developing and deploying mission-critical applications across client/server, host-based and mixed computing environments, according to the Bedford, Mass., company.

Capabilities include graphical and event-driven extensions to the 4GL, an enhanced DataServer architecture and performance-related enhancements to the Progress relational database management system.

Progress Version 7 is priced by separate component or in bundled packages. Prices range from $250 to $36,130.

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2. All entries must be signed by the IS executive and one of the business unit executives who sponsored or led the re-engineering team.

3. Include the name, address, phone and fax number of the two entrants, along with two or more references who are familiar with the project and are willing to be interviewed. One reference should be a beneficiary of the project: a customer, supplier or user from the sponsoring business unit.

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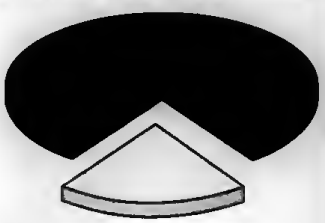

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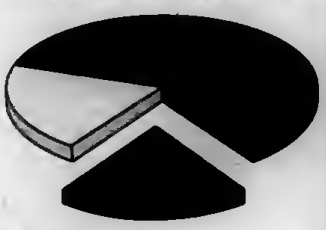

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Training on thin ice

As corporate training goes high-tech, coordination between IS and human resources departments becomes critical. But the walls between them are still rarely breached.

Source: SB Communications, Hingham, Mass.

Do workers have the skills they'll need tomorrow? That question, once academic, has become profoundly important with the downsizing, rightsizing and career-shifting that have torn through the economy over the last few years. According to the American Society for Training and Development in Alexandria, Va., U.S. companies spend $30 billion, or 1.5% of payroll, on employee training annually.

Using the computer screen as a vehicle for training workers is not new. Computer-based training (CBT) has been around for well over a decade and is available on platforms ranging from standalone PCs to mainframes. Until now, however, CBT's use has been relatively narrow: It is used primarily to teach people about computers and software, not how to perform their jobs better or refine

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▶ Union Carbide's Ted Smith: *HR now manages instructor-led courses in software*

Training

CONTINUED FROM PAGE 81

general-purpose business skills.

But many observers say that's about to change, both because firms are desperate for faster ways to teach workers new jobs and problem-solving skills and because of technological improvements — multimedia computing in particular (see story page 84).

IS challenges

This broader definition of CBT presents the information systems group — in many cases the de facto owner of CBT for computer-skills instruction — with several important managerial challenges:

- How should it coordinate with the human resources (HR)/training department or the business units requiring computer-based training?
- Who owns this high-tech training?
- Who authorizes capital investments in hardware and the software needed to develop and support it?
- Is the help desk, typically run by the IS shop, part of the training operation?
- What are the roles of the departments or business units that CBT will benefit?

Even today it can be difficult to tell where training leaves off and an IS function picks up. Take the case of the help desk.

"To what extent does the help desk become a training organization?" asks Ellen Kitzis, vice president at Dataquest, Inc.'s Worldwide Services Group in Framingham, Mass. Who ought to call the shots, she asks, if HR takes responsibility for classroom-based PC training but users call IS when they get into trouble?

The best examples of coordinated IS/HR efforts are found in "businesses that have recently gone through business process re-engineering," Kitzis says. In these cases, training is not seen as something separate from information systems but is "tied to a larger change effort in the organization."

For example, IDS Financial Services, Inc. in Minneapolis is re-thinking its business processes with an eye toward providing its customer support agents with "electronic performance support" that will dramatically reduce the time spent training employees.

"Previously we spent 12 hours on instruction for agents doing money transfers to IDS accounts," remarks Betty Mackay, director of service operations training at the American Express Co. subsidiary. Mackay notes that a bank transfer is a four-minute task, but because of its complexity required hours of classroom instruction and a full month of practice.

Mackay says she expects the new customer service interface — implemented on a Macintosh platform and featuring multimedia, a rules database and artificial intelligence components — will reduce training to between 30 and 60 minutes of practice. IDS could ultimately have 800 to 1,000 users on this system or others like it, she said.

"We assumed the underlying systems would stay the same, but we wanted to change the interface so that people could understand it easily," says Mackay, who worked on the project with members of IDS' IS group and staffers with a background in instructional design.

Significantly, Mackay is a trainer with the business unit, not with IDS' IS or HR departments. To some, Mackay typifies the trend of authority over training's increasingly moving out of the hands of either the IS or HR department.

"The business units themselves are taking on the responsibility, using HR and IS as advisers," says Don Arnoudese, vice president at CSC Index, Inc. in Cambridge, Mass.

As corporations re-engineer and move to a "process model" of work — in which activities cross departmental boundaries — training will be incorporated into a larger picture, he says.

"Process owners" within the business units, he says, will consult with IS for technical know-how and with HR/training for coursework design.

But business unit or departmental responsibility for training remains the exception and not the rule. Few firms have any formal coordination among the three parties.

Better coordination between IS and HR might, for instance, allow the help desk to feed the HR department information about subjects that users are confused about, which in turn would bring HR to modify the content or emphasis of its computer classes.

For busy schedules

More typical is the situation at Union Carbide Corp. in Danbury, Conn., where for the past three years the IS department has had province over CBT courses on Microsoft Corp.'s Windows, Excel and Word for Windows — all company standards.

"We have CBT mostly for people who don't have the time in the office for more formal training," says Ted Smith, manager of systems development. Instructor-led courses in software, once coordinated by IS, are now managed by outsourced trainers, who are managed by an education group in the HR department.

"We participated in the transfer about a year ago, and we evaluated the outsourcer," Smith says. He adds that the IS department is also considering a separate group to handle technical skills development for its staff.

Elsewhere, mutual suspicions may hamper the chance for improved coordi-

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Why Johnny can't train

Computer-based training has its limits, but multimedia may transcend them

The blush is off the rose with computer-based training (CBT), which the industry heralded as an ideal, general-purpose teaching tool in the 1980s.

"Last year only 18% [of survey respondents] were using it to teach nontechnical skills," says Jack Gordon, editor of Minneapolis-based *Training Magazine*.

The reason, according to some, is that some kinds of instruction are not suitable for self-study.

"Self-study, like CBT or video, is an effective way to build knowledge but not skill," says training consultant Dennis J. Kravetz. To teach someone golf, he says, one could have someone watch golf. "But you won't become a competent golfer unless you get a golf club in your hand."

Don Arnoudese, vice president at CSC Index in Cambridge, Mass., agrees. "There's still nothing like sweating together in the same room," he says, referring to teaching management concepts, which he contends will never be reduced to a software program.

That could change as multimedia computing comes to the desktop, enabling video and audio training material to be incorporated into the working life.

One of the most bullish proponents of this future is Gloria Gery, an independent consultant in Tolland, Mass. The key, she says, will be multimedia implemented through the use of object-oriented programming techniques.

"The object database could be reused across applications, including training," she says. In other words, training would no longer be a separate application but would be wedded into the work application itself.

Gery insists that well-designed software — either custom or commercial packages — can teach users everything they need to know.

"Training is now largely compensatory for badly designed applications," she says.

— Ellis Booker

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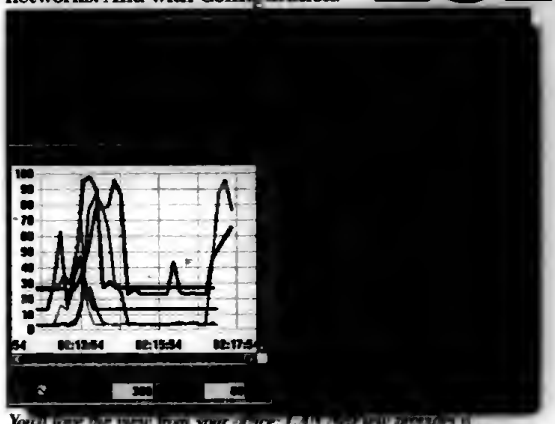

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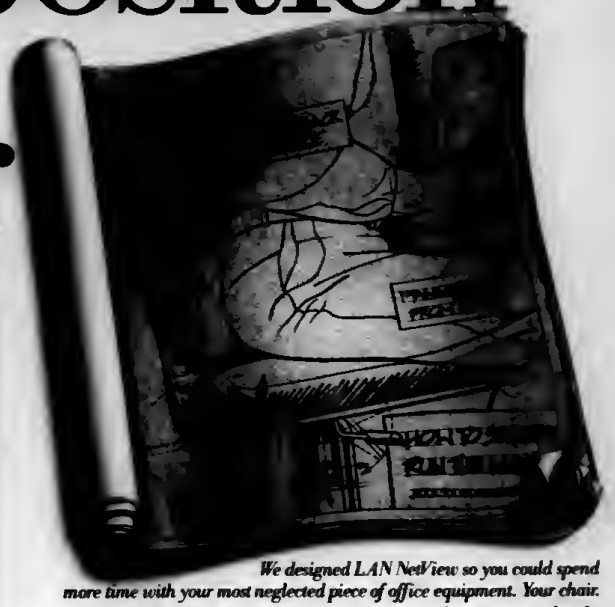

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IBM

Chicago IS group

From one executive . . . to another

By Ellis Booker

When the heavy hitters from in and around Chicago's information systems community gather quarterly to hear a vendor presentation, they are almost always promised a good show.

That is because the Chicago Research & Planning Group (CRPG), composed of more than 100 of the Midwest's top IS executives, insists on hearing from chief executive officers and chairmen. Period.

"[In 1991] we brought in Jack Kuehler from IBM, and it was a very refreshing presentation," said Frank Diaz, president of Kemper Service Co. in Chicago. "He was a technologist talking about his firm, not a marketeer." Diaz, a founding CRPG member, added that the IBM president fielded some "tough" questions.

Not all vendor CEOs have felt comfortable meeting a hundred or so high-level IS executives on their own turf. Attendees at Charles Wang's presentation last year recalled that the Computer Associates International, Inc. leader became a bit rattled under the questioning before settling down into a decent dialogue.

Still, many vendors want to go through this trial. This year the group has heard presentations from the following: Microsoft Corp.'s Bill Gates; Apple Computer, Inc.'s John Sculley; NetFrame System, Inc.'s Carlton G. Amdahl; and EMC, Inc.'s Dick Egan.

"So many firms want their CEOs to talk to us that we have gone to a luncheon format in addition to the quarterly meetings," said CRPG Executive Director Richard G. Arns.

Incorporated in 1991, the CRPG has a membership roster that reads like a "Who's Who" of Midwest IS departments. The group's founding members, who began talking in 1989, were Warren Ousley, at the time president of LaSalle National Service Co.; Peter Miller, corporate senior vice president of First National Bank of Chicago; and Diaz.

Another example of the group's chutzpah is the fact that, unlike broad-based professional organizations like the Society for Information Management, CRPG is exclusively an executive club.

"We're building a 'commodity exchange' for information transfer."

Richard G. Arns
Chicago Research & Planning Group

In fact, the CRPG is one example of the increasingly vocal and powerful local user groups that have sprung up in recent years [CW, June 7]. These groups have emerged as the pace of technological change in business has accelerated, and as open systems and distributed computing have cracked the market hegemony of firms such as IBM and Digital Equipment Corp.

Like these other groups, the CRPG does attempt to use its collective numbers to lobby vendors for better service, features and prices.

In addition, the Chicago group is explicitly dedicated to helping members avoid mistakes by sharing experiences.

"We're sharing [technical] classes we do in-house," said Peter Miller, corporate senior vice president at First National Bank of Chicago. The group's so-called Education Training Consortium offers more than 100 courses at member sites.

Member 'database'

But the consortium is just the first phase in the CRPG's ambitious educational initiative, according to Arns, who is now engaged in an innovative project that will collect the requirements (and real-world experiences) of CRPG members and make them available to academia, vendors and other parties.

"We're building a 'commodity exchange' for information transfer that will link users, universities and vendors," said Arns, who hopes to have an on-line database supporting the project within a year.

All its activity has put the CRPG on the map.

"Oh, we have had a lot of requests from out of town to join," Diaz confirmed. "But we intentionally want to keep it here. That was a front-end decision."

For Diaz and others, this rule is not elitist as much as it is practical: To fulfill the group's mandate of providing an informal place to network and exchange ideas and approaches, the members ought to be in close proximity.

"We're not out to build an empire," Miller agreed.

Training

CONTINUED FROM PAGE 82

nation between the HR and IS departments. IS may feel HR professionals don't have the know-how to train workers on computers; HR might think the IS staff doesn't know how to teach. In fact, tensions between the two groups predate the widescale deployment of networked PCs or the more recent interest in multimedia for training, those in the field point out.

"It began when interactive laser disc came on the scene," says Chuck Gorman, president and chief executive officer of Learn PC, Inc. in Minneapolis. The interactive laser disc has been used as a skills-development tool — generally as an adjunct to classroom instruction — for eight or nine years. "That started the question, 'Who owns and manages this?'"

More teamwork

Although the HR and IS departments are minimally coordinated today, in the future they will work together on a range of projects, predicts Dennis J. Kravetz, a training consultant in Rolling Meadows, Ill.

"What HR can contribute is [knowledge about] how adults learn, how to structure training, curriculum and courses," he says. Coupled with the IS department's contribution — an understanding of what a particular hardware/software combination can provide — the result can be "really outstanding products," Kravetz says.

Take the case of ITT Hartford Insurance in Hartford, Conn., which has developed and deployed a "proof of concept" electronic performance support system, a client/server application that includes reference, training demos and expert-system-like coaching to property analysis underwriters. A proof of concept system is defined as one that may not necessarily be pursued as a production application.

"We wanted to see if it was technically possible to do it and if it was worth doing," said Celia Duke-Moran, an education consultant in ITT Hartford's HR department. "The answer was yes to both questions."

Broad-based participation

Even more striking than the pilot application, which eventually will be rolled out to some 4,500 users in 44 offices, is the fact that the team who built it included representatives from the business unit, the IS group and the training department.

"We were successful because application developers brought us in at the beginning, not at the end," Duke-Moran says. She contends that if handled properly, such systems will not territorially threaten the training department.

"Training is never going to go away," she says. "But I think trainers will be relieved that some portion can be brought to the desktop. It makes their role clearer." ■

Calendar

OCT. 24-OCT. 30

Information Technology Association of America (ITAA) Management Conference. Seattle, Oct. 24-27 — Contact: ITAA, Arlington, Va. (703) 284-5355.

The Seybold Executive Forum. Hancock, Mass., Oct. 24-28 — Contact: Patricia Seybold Group, Boston, Mass. (617) 742-5200, ext. 118.

Wireless and Portable Computing Technical Forum. Burlington, Mass., Oct. 25 — Contact: Franson, Hagerty & Associates, San Jose, Calif. (408) 453-5220.

Geoworks Software Developers Conference. "GEOS: The New Profit Platform." Burlingame, Calif., Oct. 25-26 — Contact: The Bohle Co., Los Angeles, Calif. (310) 785-0515, ext. 227/233.

EDI 2000. Dallas, Oct. 26-27 — Contact: EDI 2000, Dallas, Texas. (214) 475-1838.

Common Desktop Environment Developers Conference. San Jose, Calif., Oct. 26-28 — Contact: Uniforum Association, Santa Clara, Calif. (408) 986-8840.

CD-ROM Expo & Conference. Boston, Oct. 27-29 — Contact: CD-ROM Exposition & Conference, Dedham, Mass. (617) 361-0617.

Symposium on Computer Applications in Medical Care. Washington, Oct. 30-Nov. 3 — Contact: American Medical Informatics Association, Bethesda, Md. (301) 657-1296.

OCT. 31-NOV. 6

Seventh International Conference on Design for Manufacturability. Orlando, Fla., Oct. 31-Nov. 4 — Contact: Management Roundtable, Boston, Mass. (617) 232-8080.

James Martin World Seminar. Los Angeles, Nov. 1-5 — Contact: Susan Levine, Extended Intelligence, Inc., Chicago, Ill. (312) 346-7090.

AMR's Seventh Annual Executive Conference. "Customer-Oriented Manufacturing: Uniting Operations and Information Systems Strategies for Competitive Dominance." Boston, Nov. 2-3 — Contact: Advanced Manufacturing Research, Inc., Boston, Mass. (617) 542-6600.

Federal Imaging 1993. Washington, Nov 2-3 — Contact: National Trade Productions, Inc., Alexandria, Va. (703) 683-8500.

Client Server Workshop. Los Angeles, Nov. 2-4 — Contact: Digital Consulting, Inc., Andover, Mass. (508) 470-3880.

E-mail World Conference & Exposition. Santa Clara, Calif., Nov. 2-4 — Contact: Digital Consulting, Inc., Andover, Mass. (508) 470-3880.

Unix Perspectives: The Conference for Enterprise Solutions. Dallas, Nov. 2-4 — Contact: Unix Perspectives, Andover, Mass. (508) 470-0526.

NOV. 7-NOV. 13

Fourth International Conference on Applications of Software Measurement '93. Orlando, Fla., Nov. 7-11 — Contact: Applications of Software Measurement, Jacksonville, Fla. (904) 268-8639.

ICCAD '93. International Conference on Computer-Aided Design (ICCAD). Santa Clara, Calif., Nov. 7-11 — Contact: Association for Computer Machinery, New York, N.Y. (212) 869-7440.

First Annual Pan Am EDI Users Conference and Exhibit. Orlando, Fla., Nov. 8-10 — Contact: EDIA/EDICC Pan Am, Conference Registrar, Alexandria, Va. (703) 838-8042.

"It was taking us ten days to get price quotes in a market where prices changed hourly."

– *Chevron Canada*

"Our client, TRW, found that getting information for project planning was simply too slow."

– *NetBase Corporation*

"Teachers were spending more time on reports than on teaching."

– *National Computer Systems*

"We had multiple systems from two companies, all with different looks, all taking data and processing it in a different way."

– *Chemical Bank's Geoserve® Group*

"Despite automation, drafting was still a paper intensive process."

– *Aetna Life and Casualty*

"There was no easy way to get critical ticketing information to the PCs on agents' desks."

– *Air France*

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Chevron formed a task force of technical staff and end users. They developed a client-server system that used Microsoft products like the Visual Basic™ programming system, SQL Server, LAN Manager, and the Windows NT™ operating system.

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Aerospace giant TRW approached NetBase, a Microsoft Solution Provider, to help it manage its projects more efficiently. The problem: Getting project data from the mainframes was expensive and slow.

NetBase used Microsoft Visual Basic to build a multiuser system with a graphical front end, and the Microsoft FoxPro® database for real-time reporting. The result: Mainframe expenses were cut by 40%, and TRW's profitability is up 20%.

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Aetna produced up to 6,000 booklets a year, each outlining a benefits plan for a different corporate customer. The problem: They used dead-end text processing and document management systems to do it.

The solution was an integrated document management system built around Microsoft Visual C++ and Word for Windows™, plus a front end created with Microsoft Visual Basic.

As a result, Aetna has cut the time required to draft new booklets by more than 115 hours a week, while improving the final product.

"Agents can grab data, work with it, and use it to give customers better service."

In 1992, Air France's ticketing data was in a holding pattern, stuck inside a proprietary database that ran on mid-range equipment.

The airline, in partnership with MediaServ, a Microsoft Solution Provider, rightsized to a system with Windows NT, SQL Server for Windows NT, Visual Basic, Visual C++, and Microsoft Access.

Now agents can get data easily, and even analyze it on their own. What's more, the system can now be passively maintained by one person, instead of a full-time team of five.

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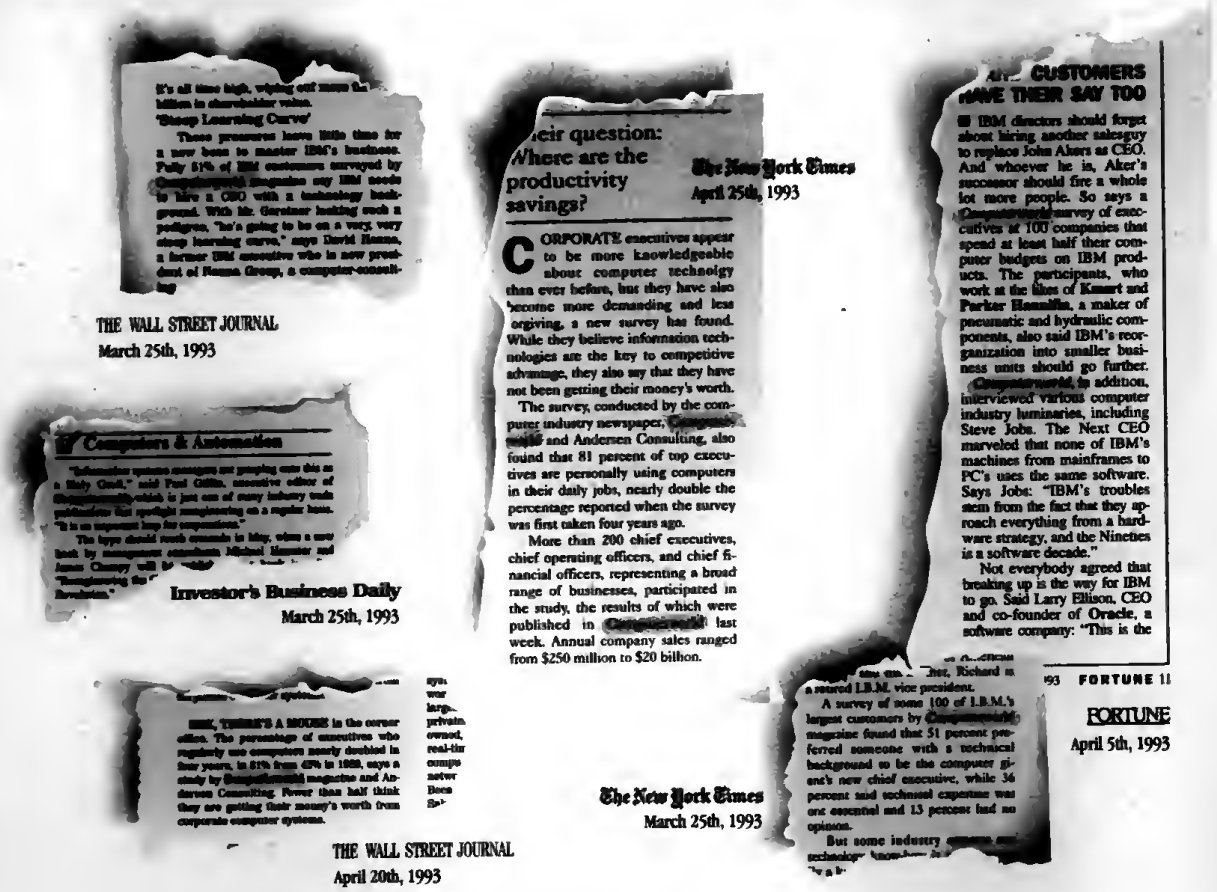

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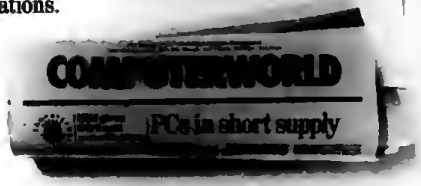

The Newspaper of IS

out of SIGHT out of MIND out of [LUCK]

Some mission-critical wireless LANs get neglected because they are tucked away on the operations side of the business

BY KEVIN R. SHARP

The crowd parts as the stranger walks through a packed Kmart, his hand groping for the sleek, shiny gun on his hip. He raises it, aims — and fires.

But there are no shrieks or bloody corpses, and there will be no day-after headlines about a disgruntled employee on a shooting spree. That's because this stranger is a Kmart staffer who is checking the inventory status of waffle irons. The "gun" he is using is a wireless Symbol Technologies, Inc. data terminal with an alphanumeric keyboard, small display, laser bar-code scanner and radio unit. It's a handheld computer with a pistol grip.

In less than 7 seconds, information makes the 100,000-mile round-trip from that Kmart store to a Teradata Corp. machine at Kmart Corp. headquarters in Troy, Mich., touching 11 computing devices and eight networks along the way. In the end, the employee knows whether he has a match between what's on hand and what's on order.

"When operations and merchandising determine that it is good for someone standing in the store to know a certain thing, the architecture enables that to happen."
Dave Carlson
Senior vice president,
Corporate information systems
Kmart

Kmart employees are part of a quiet revolution going on in back offices, on production floors and out in the field. Users are moving short bursts of mission-critical data over wireless networks to and from a host computer.

The most important weapon in the revolution? Transaction-processing wireless networks that use radio frequency communication to support the minute-by-minute processes by which corporations earn their revenue.

Out of sight, *page 90*

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These networks literally place a company's information resources in the hands and on the fork lifts of production workers.

But information systems managers traditionally haven't paid enough attention to issues in this area. That's because transaction-processing RF LANs aren't part of the sexy, high-profile world of corporate information and decision-support technology. Instead, they support the down-and-dirty world of operations, commonly the purview of all those "manufacturing types."

More startling still is that some IS groups view RF as a form of black magic, with network topologies different from wired setups, the whole area has become shrouded in mystery.

Let's smash the mystery to bits.

"When a customer walks into a dealership, if you can't get him a part, he is going to go someplace else. We make the commitment to ship the part anywhere in the U.S. in 24 hours. What drove us to [RF technology] is dynamic updates."
Roger Valentine
Operations analyst
Chrysler

In a mission-critical environment, temporary interruptions in processing are taboo. Reliability and availability are paramount. To a firm such as Chrysler Corp. — where workers in a 1 million-sq-ft parts warehouse scan about 50,000 bar codes a day — a slowdown or interruption at that pace means customers won't get a part in 24 hours.

And the pressure of severe just-in-time (JIT) shipment constraints adds fuel to the fire. At Collins and Aikman Corp., a $1.3 billion textile manufacturing company that supplies carmakers, JIT shipments have to be sequenced in the right order on a pallet and the right order on a truck. Employees use RF devices as they load a truck and gather information the company uses to generate shipping papers and electronic data interchange advance shipping notices.

"Without an RF transaction-processing network, you'd have to write [JIT sequences] down and take them back into the office. The truck would be waiting. In the automotive industry, you don't make anybody wait around."
Harry Sanders
Manager, manufacturing systems
Collins and Aikman

Communication reliability requires adequate RF coverage throughout an active work area, typically provided by some combination of RF controllers broadcasting through one or more antennae. Some types of RF networks, known as narrow band, support a few dozen users per frequency and cover about 1 million square feet indoors. Other systems, namely spread-spectrum systems, support 100 or more users and cover about 100,000 square feet indoors per cell (see story below).

Chrysler achieves transparency for its workers in its 1 million-sq-ft distribution center by having four in-building RFs. It has 31 RF terminals and two base radios attached to each frequency. Cable connects base radios to a controller. The base radios have the intelligence to switch the handheld units automatically to the nearest base. Workers, who typically have had little exposure to computers, worry only about the job at hand, not about file transfer.

"The operators never know which of the bases they are talking to."
Roger Valentine
Chrysler

Using a transaction-processing wireless LAN requires more than just a good solid communications channel, however: It must interact with the wired world.

Other wireless configurations, such as wireless desktop nodes, directly replace standard wire. Therefore, most software operating across a wired network will interact with the wireless node without modification. The rest of the network sometimes does not know a particular node is connected without a wire.

Transaction-processing LANs, on the other hand, don't behave at all like wireless desktop LANs. The interface is not transparent, so the IS staff consciously needs to make the interface happen.

A network bridge is needed to move data between wired and wireless domains. The bridge uses a proprietary scripting language to develop transactions.

The transaction developers need to consider the limited display size of the RF terminals when deciding how to present information. The language needs to extract and format user data. The data must be transferred to a wired network application program, which can then distribute it to other applications on the wired network, if desired.

Some wireless transaction-processing networks get around the proprietary scripting problem by offering terminal emulation. In this case, the network RF terminals might look like a collection of 3270 terminals. Any application program written for a 3270 environment theoretically works without modification.

However, except for one machine I know about (not yet on the market), wireless terminals never provide a full-screen display. If screens originally written for full-screen 3270 terminals are sent to limited-display wireless terminals without modification, the user must scroll the display around to see the entire screen. Such scrolling slows things down for users needing hands-free movement.

Also, it may take many more screens to accomplish a transaction on a wireless terminal than on a full-screen one. For instance, entering an operator ID, product designation, serial number, quantity and bill of lading reference number — a one-screen job on a 3270 — turns into a three-screen job in an RF network environment.

If transactions are executed from wired 3270s, any change to the wired screens must be translated to the wireless applications and vice versa.

"As you change the transactions running on the RF network, you open up the whole issue of whether the changes will cause problems on the wired side."
Harry Sanders
Collins and Aikman

Most IS shops choose to rewrite the screens so data remains the same, but users get information a little at a time within the constraints of the display. Some RF networks perform this translation in the controller; some require modification in the host application.

Either way, someone still has to perform the conversions manually, and someone must make sure the small screen version is kept up to date.

Unlike most corporate networks, transaction-processing RF networks serve users whose primary jobs do not include computer work. The value of these networks comes from their ability to deliver data from corporate information infrastructures directly to people creating value in the company. The challenge for IS managers is to design and maintain the network so people can concentrate on their jobs, not the computer system.

Sharp is a data communications and automatic identification consultant in Tucson, Ariz., and a technical editor at *ID Systems* magazine.

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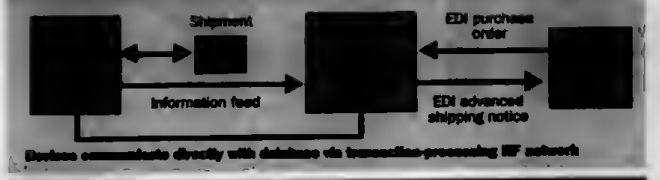

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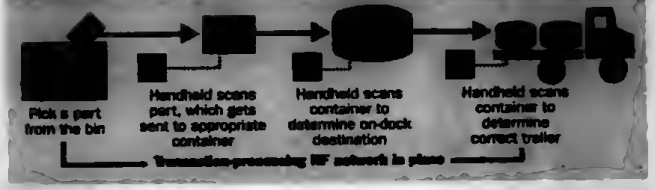

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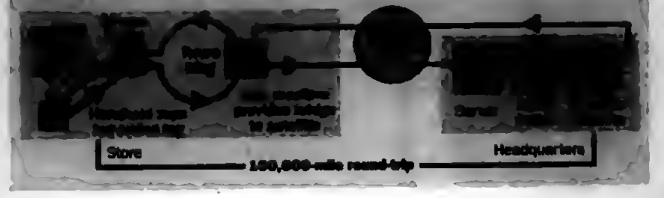

Sources: Collins and Aikman Corp., Chrysler Corp., Kmart Corp.

Users' choice

Types of transaction-processing RF networks:

Narrow band
- Need Federal Communications Commission license.
- 25-KHz-wide spectrum allocation; up to 9.6K bit/sec. throughput.
- Radios offer up to 2 watts of power; transmitting 1 mile in the open or about 1 million square feet inside.
- Interference protection in theory because FCC license reserves frequency exclusively for installed network.

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- No FCC license needed.
- Half-watt units provide coverage of 250 to 500 feet per cell. Kmart, for instance, averages between two and three cells per store.
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Making the switch

Advice on working with relational databases for flat-file types

By David Baum

THE SWITCH FROM working with flat files to working with relational databases mirrors a larger movement now taking place. Many organizations are introducing powerful new processors to supplement their mainframe systems, from low-end PCs to powerful Unix workstations. These processors find their way as facilitators of client/server applications, and increasingly, that spells one thing: relational databases.

When Cobol was developed, programming languages had to have everything in them to make a monolithic application, including data management and data access functions, says John Bradley, vice president of Liant Software Corp. in Framingham, Mass.

Today, the database portion and the user interface portion are separate from the business rules, or application logic. It isn't the application's prerogative to decide how data is stored.

"Cobol programmers are used to writing custom programs to retrieve data, and they bring this procedural mind-set to database querying and reporting," says Anu Shukla, director of worldwide marketing at Uniface Corp. in Alameda, Calif. "They have to start looking at problems in a relational fashion, which requires a different level of abstraction. Business problems must be analyzed in terms of the relationships of events."

While flat-file databases store, organize and retrieve information from one file at a time, relational databases store data in two-dimensional tables. Programs take data from several tables at once, relating information through links established by a column or field.

Ken Fleming, president of Suite Software in Anaheim, Calif., says the main issue for flat-file programmers is making the mental shift that working with relational databases requires.

With flat files, relationships among files are managed by the applications themselves, and programmers must code for data management functions such as referential integrity, commit and rollback. But in the relational world, this work is handled by the database engine.

"The mistake programmers make is in bringing a flat-file mind-set to working with relational databases," Fleming explains. "Instead of treating the relational database as a database, they treat it as a bunch of files. But the relational engines take care of referential integrity and other complex data management functions. Programmers don't have to burden applications with these tasks if they use the engines properly."

Application development actually gets simpler once programmers understand how to use the relational databases. To properly build a relational application, there is typically some kind of modeling scheme used to establish the entities and relationships of the database. A single entity has multiple relations represented by data in tables. Relationships among files are established with foreign keys and views, which exist apart from any application's use of those files.

"Most Cobol programmers think of data as something they own and must be responsible for," Fleming adds. "But that's the database administrator's job. Application programmers should be focused on the business functionality of each application, not on how and where the data is maintained."

Baum is a free-lance writer in Santa Barbara, Calif., who specializes in emerging technologies.

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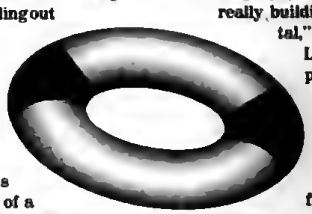
LAYOFF SURVIVORS

INFORMATION SYSTEMS PROFESSIONALS SPARED FROM CUTBACKS FIND IT DIFFICULT TO SEE CAREER OPPORTUNITIES

By Joe Panepinto

While many IS managers and consultants dance gingerly around the topic of staff reductions, the IS personnel who remain find themselves in the far less genteel situation of shoveling out from under a mountain of new responsibilities.



In fact, from a career perspective, it may be more worthwhile to be one of the first employees released in any kind of a cutback because it gives the IS professional a head start on picking up new career skills and canvassing local companies for job opportunities, says Allen Davis, president of The New Professional Group, Inc., a management consultancy in Amherst, Mass.

Too often, employees who remain at companies discover the cuts were made haphazardly and find themselves in a position where there is too much to do and too little time in which to do it.

A recent New Professional Group survey of 200 managers and professionals in the microelectronics industry found that nearly half believed corporate downsizing means a reduction in head count, not work load. The result for IS managers and others in newly "streamlined" companies is little, if any, time for training on new career-enhancing technologies.

Maintaining a dying system

"Generally, the people who are left behind too often are left to tend and maintain a dying, outdated system. They may be drawing a paycheck, but they are not really building any career capital," Davis says.

Leroy Comstock, data processing manager at Reynolds Metals Co. in Louisville, Ky., for instance, has seen his department shrink from 12 people to four, while the number of users he supports has skyrocketed. In the early 1980s, when the data processing staff was still about a dozen people, Comstock supported five dumb terminals on an IBM 4331 system. Today, with one-third the staff, Comstock's department supports 400 user profiles, 45 printers and more than 150 dumb terminals on a network with an IBM System/38 and an AS/400. At the same time, the data processing group has picked up new responsibilities for a mobile radio frequency network that supports PCs on forklifts in the warehouses.

"We're always putting out fires, so it is really hard to cross-train people on different systems because you can't spare them from their area of specialty," Comstock says.

Obviously, the career key for employees remaining in downsized IS departments is to get additional training. However, it is equally obvious that not all training is created equal.

A year ago, a systems project leader at a recently downsized California process manufacturing company told *Computerworld* the best way to stay ahead of the budget ax was to stay as current as possible with technology: "Anything new that comes along I volunteer for," he said at that time. Well, it's a year later, and he hasn't really had the chance to stay current.

"From a personal perspective, in regard to career growth, I'm learning a new software package and gaining skills there," he says. "But the training is strictly applicable to this software package and to the mainframe."

That is not to say there isn't a silver lining to being spared the budget ax. Those who remain after the downsizing of IS departments sometimes have an opportunity to expand the breadth of their technical expertise. However, with the press of immediate responsibilities, employees run the risk of being a mile wide in terms of technical skills and only an inch deep.

> **"During the downsizing, we cut out a lot of redundancy. As a result, a lot of good people left who wouldn't normally have been cut because the situation was just too unstable for them."**
>
> Kevin Smith
> Burlington Air Express
> Irvine, Calif.

Juggling jobs

"I find you have more jobs on your plate, so you have to address them more efficiently," says Kevin Smith, a project manager at Burlington Air Express in Irvine, Calif.

In the last year, Burlington has cut its IS department by almost 50% — from a high of 160 employees to about 100. Senior technical managers have begun doing more hands-on technical work such as writing procedures to gather network management statistics, and the hierarchy has been flattened. To help remaining employees keep up with new duties, Burlington has had many on-site training programs.

"I definitely think we are doing more training internally," says Smith, who receives virtually all of his training while on the job. "I wouldn't say it's a big change, but it is occurring."

Panepinto is a free-lance writer in Amherst, Mass.

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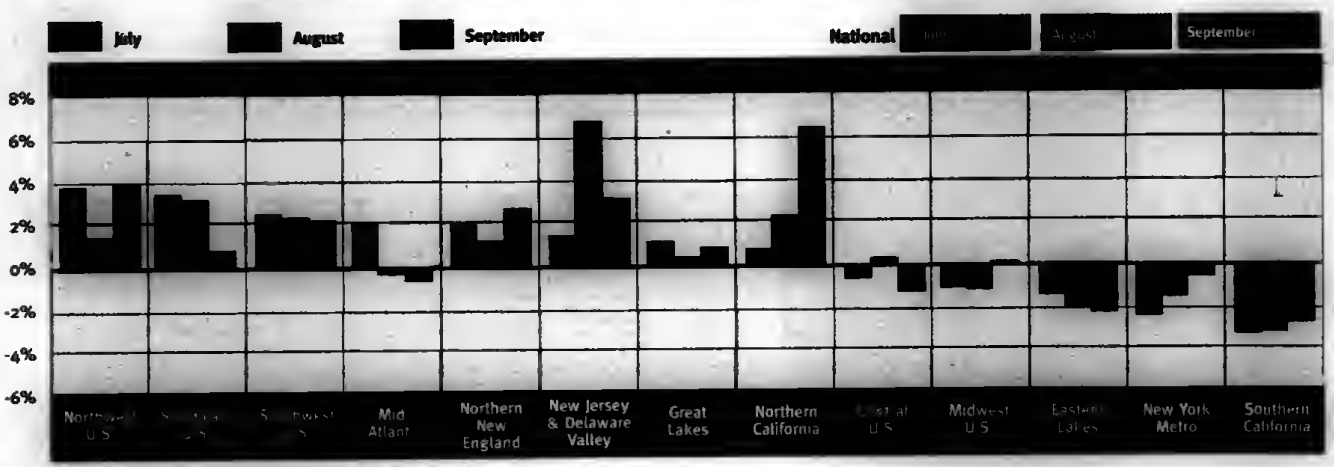

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SYSTEMS ANALYST (REF. #7/7000) to consult with clients to ascertain & define their business reqs or problem areas & utilize tech expertise to provide solutions to clients' needs, incl analyzing, designing, developing & implementing comp s/ware for clients' EDP sys. Duties incl: analysis, design & development of a financial automation sys; identifying business reqs; designing an object-oriented sys & implementing it using C++ on the IBM PS/2. Duties require the use of IBM PS/2, 486, C, Microsoft C++ 4.0 Windows or Presentation Manager graphical user interface. BD in EDP: Bachelor's in Comp Sc, Engg, Sys Anal or Math & 3 yrs exp in the job offered or 2 yrs exp as Progr, Sys Progr, Prog/Anal, Sys Anal, Software Engg or Consultant. Will accept 5 yrs of college ed plus 3 yrs of exp in the job offered or in the related occupation in lieu of the required ed & exp. REL EXP: In whole or in part, or were dvpt'ment on IBM 386 or 486; & using C, Microsoft C++ 4.0 Windows or Presentation Manager graphical user interface. $84,000/yr. ed hrs/wk.

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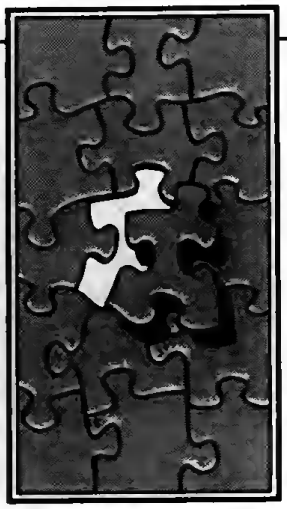

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VISUAL DEVELOPMENT TOOLS

'My vendor didn't tell me that. . .

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By David Baum

Visual development tools are catching on like wildfire as people look for quicker ways to get backlogged applications into production. They create beautiful graphical user interfaces (GUI), and their fast development cycles and short learning curves make them good for tactical development projects. But those tools do have limitations, which the vendors don't always mention. In a recent poll, software developers offered the following first-hand observations on just when these tools are appropriate and when a more comprehensive application development environment is required.

. . . the applications aren't portable.'

■ Most visual development tools were designed to create and deploy applications on Macintoshes and PCs. In many cases this is adequate, but as a department expands, the applications created might not go along for the ride.

"Development tools that work only with Windows can limit an organization with a diverse information enterprise," says Paul Ameden, a systems analyst at Kodak's Office Imaging Division in Rochester, N.Y. His advice? For key applications, it is better to use a cross-platform tool.

At the high end of the tools market, for example, a product such as Uniface from Uniface Corp. enables the same application to be deployed on platforms running Windows, the Open Software Foundation's Motif, Sun Microsystems, Inc.'s Open Look, IBM's Presentation Manager and character-mode systems simultaneously. The price for this complexity is that it may be overkill for simple applications.

. . . the software offers only limited SQL compliance.'

■ "Many of the simpler visual development products force you to write code for all relational database transactions," says Keith Therrien, a software architect at Arkwright Mutual Insurance Co. in Waltham, Mass. This is not a problem in a simple application that accesses a few database tables, he adds. However, it can get extremely time-consuming for relational applications, where 50 or 100 tables might be involved, with numerous joins among them.

Most development tools support SQL, but they differ widely in their implementations. Ralph Dunlap, a project manager at Georgia-Pacific Corp. in Atlanta, spells out the problem.

"Unless you have tried it, you can't appreciate the effort required to create applications that include both graphical user interfaces and SQL database processing. Just to create a simple invoice application that allows for a one-to-many relationship with standard SQL operations, even with a visual development tool, is a three-week programming task." For applications that must access complex relational database structures, it's better to use development tools optimized for a relational environment.

. . . the tools make little or no provision for high-level analysis and design.'

■ Haste makes waste, and if you create an application with no regard to established corporate data models, you'll pay for it in extra maintenance.

"It's great to have the ability to quickly throw together an application, but are you enabling users simply to build bad applications faster?" asks Ray Stanley, senior consultant at Miles Burke Associates in Scottsdale, Ariz. "How do you ensure that these objects represent the integrated views required by the business and that you are building a reusable asset?"

This is a common complaint about many visual development products. Lacking intimate connections to front-end computer-aided software engineering tools, there is often no provision for a true analysis of business requirements. Simple applications have their place, but developers such as Stanley stress the importance of working from a data model for mission-critical systems, in which all objects and attributes have been carefully defined.

Another caution: Some visual development tools can use a logical data model as the foundation for applications, but developers must type in the data definitions, which can be time-consuming.

. . . I have to write third-generation language code for all the business logic.'

■ Visual development products have enjoyed a nice ride on the GUI wave, but as application developers know, creating the GUI portion of an application is just the start. Once the interface is in place, you must connect it to the database and create the database-access logic.

Most visual development tools and GUI builders generate code for the user interface shell, but customization of that interface must be done manually, explains Todd Powell, senior systems analyst at TransAlta Utilities Corp. in Calgary, Alberta. "Even simple things that you probably take for granted if you have used a fourth-generation language, such as edit masks for a field, typically have to be manually programmed," Powell says.

. . . the software isn't really object-oriented.'

■ Visual development tools often claim to be object-oriented but are often merely object-like. "They are visual, or GUI, products, but they fail to meet any of the standard criteria for OOP languages, such as encapsulation, inheritance or polymorphism," says Colin Davies, a programmer in Simi Valley, Calif. Programmers who want a true taste of what it's like to work with objects are better served by a language such as Digitalk, Inc.'s Smalltalk, he adds.

Others agree. "A lot of the new tool sets lean toward object orientation, but they aren't really object-oriented at all," says David Booty, a project leader at Paradigm Management, Inc. in Dallas. The foundation of object-oriented processing is inheritance, he continues. A true object-oriented environment can create reusable, encapsulated code units that are extendable. At runtime, each code unit or object dynamically inherits the set of attributes that makes it unique, without recompilation or relinking.

When evaluating what tools to use for a particular project, most developers ask themselves two things: how much coding will I have to do, and will the resulting system be viable over the long term? If you can accomplish your objectives with a visual development product, then go to it, but don't be seduced into attempting too much with one of these products. You might bite off more than you can chew.

Baum is a free-lance writer in Santa Barbara, Calif., who specializes in emerging technologies.

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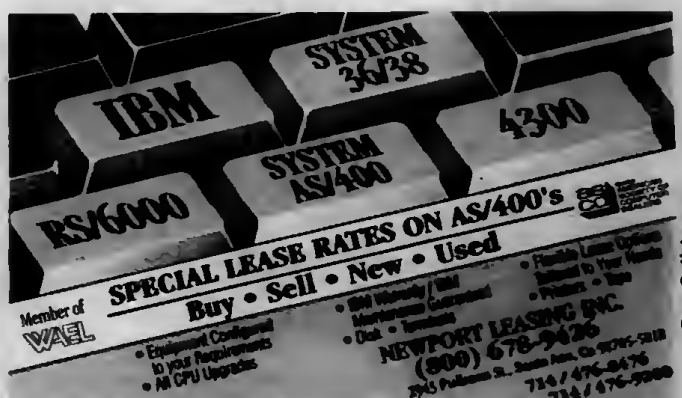

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PS/2 Model 70-A21	$700	$775
PS/2 Model 55SX	$650	$700
ThinkPad 700C	$3,000	$3,200
PS/2 Model 90-0H9	$1,700	$1,550
PS/2 Model 95-0JF	$2,700	$2,850
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SLT-386	$925	$875
LTE-286	$575	$525
Prosigna 486/66	$4,500	$3,750
Apple Macintosh SE	$550	$575
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Percent

Symbolic Systems Inc.	31.8	Pyramid Technology	-29.3
Walker Interactive Systems	17.0	Advanced Micro Devices	-21.3
IMRS	14.5	Micro Focus	-20.9
Sequoia Systems Inc.	13.0	Spreadsheet Software	-16.0
Liberty Corp	11.6	Dallas Semiconductor	-15.2
Micrografx Inc. (H)	11.2	Ashton Corp.	-14.6
Cimtek Corp. (H)	11.1	Kendall Square Research	-13.5
State of the Art	10.8	System Software Assoc.	-13.1

Dollar

Kronos Incorporated Inc.	3.50	Tadpole Systems	-9.50
Cimtek Corp. (H)	3.38	Texas Instruments	-6.25
IMRS	3.25	3 Phase Technology	-6.25
Symbolic Data Systems (H)	3.00	Micro Focus	-5.63
Micrografx Inc. (H)	2.75	Advanced Micro Devices	-5.50
Liberty Corp.	2.50	Compcom Corp.	-4.88
Matsushita Electronics	2.00	Dallas Technology	-4.00
Symbol Computer Inc.	1.88	Information Resources	-4.00

Pyramid rebuilt?

Pyramid Technology Corp. (PYRD) has made great strides this year, but it is not completely out of the woods yet.

Last Thursday, the company announced that its earnings will fall short of analysts' expectations for its fourth fiscal quarter, which ended Sept. 30. Investors punished Pyramid's stock with a 5¼-point drop on Thursday.

Pyramid, a San Jose, Calif., maker of Unix database server systems, will nonetheless post a profit for fiscal 1993 after losing $1.78 per share the previous year. Through the first three quarters of fiscal 1993, Pyramid earned 42 cents per share, or just more than $6 million, on revenue of about $173 million; fourth-quarter earnings per share should be on the order of 25 cents.

Pyramid blamed its fourth-quarter shortfall on the continuing weak economies in Europe and Japan. Smith Barney Shearson, Inc. analyst Shao Wang noted in a Sept. 29 report that past earnings problems may have sprung from Pyramid's attempts to cover too much ground. Pyramid appears to have refocused itself on the vertical markets where it has expertise, he said.

Kemper Securities, Inc. Vice President Joseph Payne said he also thinks Pyramid is on the right track. "It looks like an accident, not a [long-term] fundamental dislocation," Payne said about the earnings shortfall.

The company manufactures symmetric multiprocessing servers that can be clustered to support more than 10,000 concurrent users. Pyramid recently started shipping new high-end Unix systems, called the Nile Series, priced upward of $300,000, which analysts said should begin to drive earnings growth for the next year or more.

—Derek Slater

Changing fortunes

Prior to Thursday's drop-off, Pyramid Technology Corp. was one of the best performers among large systems vendors during the past year

Company	Price 10/2/92	Price 10/2/93	Change
[redacted]	7⅜	24	210%
[redacted]	8¼	21⅛	158%
[redacted]	8½	12⅛	43%
[redacted]	10½	12⅜	18%
[redacted]	25	24½	(2%)
[redacted]	36⅞	24⅜	(34%)

Exch	52-Week High	52-Week Low	Oct 8 3 PM	Wk Net Change	Wk Pct Change
OTC	40.00	17.63	3 COM Corp	29.63	-0.13	-0.4
NYS	91.13	63.38	American Info Techs Corp	84.13	-1.75	-2.0
NYS	65.00	41.00	AT&T	57.63	1.13	1.9
OTC	4.06	0.75	Antel Communication Corp	3.25	0.13	4.0
OTC	24.50	12.50	Banyan Systems Inc.	17.50	1.00	6.1
NYS	64.88	44.50	Bell Atlantic Corp	60.38	-3.13	-4.9
NYS	62.88	46.75	Bellsouth Corp	59.63	-1.00	-1.6
NYS	14.75	3.63	Bolt, Beranek & Newman	9.50	0.00	0.0
OTC	10.50	9.50	Broadthout Technology	12.75	0.25	2.0
NYS	119.00	62.75	Cabletron Systems	92.38	10.63	-30.3
OTC	35.00	7.00	Centigram Communications	34.25	1.50	4.6
OTC	55.50	20.25	Chipcom Corp	47.63	5.75	-10.8
OTC	59.25	24.00	Cisco Systems Inc.	45.00	-4.75	-8.6
OTC	14.38	6.00	Compression Labs Inc	14.75	0.75	5.4
OTC	36.00	20.75	CrossComm	26.75	-1.38	-5.3
OTC	4.63	1.63	Data Switch Corp	2.75	-0.13	-5.3
NYS	19.88	12.38	Digital Comm Assoc	18.75	0.00	0.0
OTC	11.75	3.75	Digital Systems Int'l Inc.	4.50	0.50	12.5
OTC	67.88	12.00	DSC Communications	57.63	3.63	-5.9
OTC	9.50	4.75	Frontier Int'l Inc	5.75	-0.63	-9.8
OTC	24.00	8.75	Fulcrum Corp	14.00	-0.25	-1.8
OTC	4.38	1.50	Gambalf Technologies Inc	2.72	-0.03	-1.1
OTC	2.06	0.75	Gateway Communications	0.81	0.06	-7.1
NYS	15.75	3.75	General Datacomm Inds	10.25	-0.50	-4.7
ASE	3.75	1.00	Go Video	2.50	0.00	2.5
NYS	38.00	32.88	GTE Corp	38.25	0.25	0.7
NYS	94.75	64.50	ITT Corp	92.25	1.00	-1.1
OTC	29.88	14.91	MCI Communications Corp.	27.75	-0.13	-0.4
OTC	6.50	1.50	Michocom Inc.	3.13	0.13	4.2
OTC	24.25	3.50	Netrix Corp	4.75	0.25	5.6
OTC	19.00	6.50	Network Computing Devices	6.50	-0.50	7.1
NYS	10.00	5.38	Network Equipment Tech	8.25	0.38	4.9
OTC	20.13	8.00	Network General	12.50	-0.75	-5.7
OTC	15.75	4.88	Network Systems Corp	7.88	-0.38	-4.5
OTC	73.88	10.13	Newbridge Networks Corp	67.25	1.13	1.7
NYS	46.00	21.38	Northern Telecom LTD	24.38	0.38	1.6
OTC	31.75	17.00	Novell Inc.	18.38	-0.25	-1.3
NYS	48.88	39.50	Nynex Corp	44.63	-1.50	-3.3
OTC	30.00	14.50	Octel Communications Corp	14.00	0.50	2.1
OTC	6.13	3.38	Pennil Data Comm Networks	4.38	0.13	2.9
OTC	30.50	13.00	Picturetel Corp	17.50	0.00	0.0
OTC	11.50	3.63	Proteon Inc	5.63	0.00	0.0
NYS	37.88	17.75	Scientific Atlanta Inc	33.50	-1.00	-2.9
NYS	47.00	31.75	Southwestern Bell Corp.	41.50	-2.13	-4.9
NYS	32.50	23.38	Sprint Corp. (H)	32.13	0.13	0.3
OTC	27.00	12.50	Standard Microsystems Corp.	23.88	0.88	3.8
OTC	18.50	9.25	Stratacom Inc.	14.00	0.00	0.0
OTC	42.75	17.09	Synoptics Communications	21.50	-2.75	-11.3
OTC	7.25	2.88	Telebit Corp	7.00	0.00	0.0
OTC	17.88	2.88	Telematics Int'l Inc.	14.38	-1.00	-6.5
OTC	35.75	15.25	US Robotics (H)	32.75	-2.00	-5.8
NYS	50.25	35.75	US West Inc (H)	49.13	-0.15	-0.3
OTC	56.00	22.75	Wellfleet Communications	43.00	-3.75	-8.0
OTC	19.50	7.29	Xircom	17.00	-0.75	-4.2
OTC	5.36	2.50	Advanced Logic Research	3.25	0.00	0.0
OTC	65.25	22.00	Apple Computer Inc. (L)	23.00	0.50	2.2
OTC	24.25	12.75	AST Research Inc.	17.00	-1.00	-5.8
NYS	9.25	2.50	Commodore Int'l.	3.38	0.13	3.8
NYS	61.75	35.75	Compaq Computer Corp	57.63	0.00	0.0
OTC	69.88	13.50	Dell Computer Corp	16.38	-0.13	-0.8
NYS	89.75	50.25	Hewlett Packard Co	67.75	-1.00	-1.5
NYS	45.13	18.38	Silicon Graphics (H)	40.25	-2.38	-5.8
OTC	41.00	21.63	Sun Microsystems Inc. (L)	21.75	-0.25	-1.1
NYS	38.88	24.63	Tandy Corp. (H)	38.88	1.13	3.0
OTC	7.00	2.50	Zeos International Ltd (L)	2.63	0.00	0.0
ASE	8.75	4.50	Abacahl Corp	5.88	-0.13	-2.1
NYS	3.75	3.63	Convex Computer	5.50	0.25	4.8
OTC	6.13	2.25	Cray Computer	4.00	-0.25	-5.9
NYS	30.88	19.00	Cray Research Inc	24.13	0.38	-1.5
NYS	13.88	7.75	Data General Corp	10.13	-0.25	-2.4
NYS	49.25	30.38	Digital Equipment Corp	38.00	1.25	3.4
NYS	44.00	30.13	Harris Corp.	41.00	-1.00	-2.3
NYS	80.00	40.63	IBM	44.00	0.88	2.0
OTC	25.75	6.25	Kendall Square Research	21.00	3.00	-12.5
NYS	141.50	83.00	Matsushita Electronics	137.00	1.00	0.7
OTC	23.75	8.75	NetFrame	14.75	-0.88	-5.6
OTC	25.00	9.75	Parallan Computer (H)	21.50	-2.75	-11.3
OTC	23.25	6.75	Pyramid Technology	15.50	-6.00	-27.9
OTC	24.00	11.25	Sequent Computer Sys.	15.25	0.25	-1.6
OTC	5.50	1.38	Sequoia Systems Inc.	2.94	0.06	2.2
NYS	41.25	20.75	Stratus Computer Inc.	26.50	2.25	9.3
NYS	16.88	8.50	Tandem Computers Inc	12.75	0.50	4.1
OTC	23.50	10.63	TeleCorp Systems	20.50	-0.50	-2.4
NYS	13.88	6.00	Unisys Corp.	12.13	0.00	0.0
OTC	37.00	12.63	Adobe Systems Inc.	19.50	1.00	5.4
OTC	21.00	11.50	Aldus Corp.	18.88	-0.63	-3.2
OTC	11.25	5.50	Amdahl Corp	6.75	-0.13	-1.8
OTC	28.13	9.50	Ask Computer Systems	14.13	1.88	15.3
OTC	56.75	38.75	Autodesk Inc.	46.50	-0.75	-0.6
OTC	7.75	2.50	Bachman Info. Systems	3.38	0.00	0.0
OTC	43.00	24.00	BGS Systems Inc. (L)	25.50	0.00	0.0
OTC	84.13	38.75	BMC Software Inc	57.75	-1.00	1.7
OTC	28.75	18.00	Boole & Babbage	24.50	-0.25	-1.0
OTC	35.00	12.75	Borland Int'l Inc	16.00	1.00	6.7
OTC	5.00	2.75	CE Software	3.88	0.25	6.9
ASE	40.75	13.34	Cheyenne Software Inc.	32.75	0.25	-0.8
OTC	19.50	8.75	ChipSoft	14.50	-0.75	-1.7
OTC	8.88	5.63	Cognos Inc.	8.38	0.75	9.8
NYS	34.00	15.63	Computer Associates (H)	34.00	1.13	3.4
NYS	7.00	2.75	Computervision Corp	3.00	-0.13	4.0
OTC	34.25	19.25	Compuware Corp	23.50	0.50	2.2
OTC	14.75	5.75	Comshare Inc.	11.50	1.50	35.0
OTC	33.88	10.75	Corel Corp. (H)	33.88	3.38	11.1
OTC	15.25	5.00	Easel Corp.	6.25	0.13	2.0
OTC	25.75	14.00	4th Dimension	22.88	1.75	8.3
OTC	19.25	5.25	Frame Technology	7.50	0.00	0.0
OTC	17.50	8.00	Gradp! Software	8.00	0.00	0.0
OTC	35.25	14.00	Gupta	16.25	0.75	4.8
OTC	12.00	4.63	Hogan Systems Inc. (H)	11.25	-0.25	-2.2
OTC	25.75	11.75	IMRS	22.75	3.00	15.2
OTC	44.75	25.50	Information Resources	36.50	-3.50	-8.9
OTC	27.25	12.00	Informix Corp	21.75	-1.00	-7.9
OTC	14.50	8.50	Integraph Corp	10.00	-0.38	-3.6
OTC	19.63	4.88	Interleaf Inc. (L)	5.50	-0.63	-10.2
OTC	16.50	4.75	Intersolv Inc.	9.25	0.00	0.0
OTC	14.00	7.75	Knowledgeware Inc.	14.25	3.75	29.5
OTC	54.75	15.50	Legent Corp.	24.00	2.50	11.6
OTC	48.25	14.75	Lotus Development (H)	46.38	1.13	2.5
OTC	23.00	3.25	MathSoft	5.88	0.63	-9.6
OTC	23.25	4.50	McAfee Associates	8.25	0.13	1.5
OTC	11.63	2.50	Meca Software	5.13	-0.38	-6.8
OTC	12.00	5.63	Mentor Graphics	10.13	-0.50	-4.7
OTC	46.00	24.50	Micro Focus	24.50	2.38	-8.8
OTC	15.25	4.38	Microgram Inc.	7.63	0.13	1.7
OTC	98.00	70.38	Microsoft Corp	84.13	1.38	1.7
OTC	46.13	18.88	Oracle Corp. (H)	38.50	2.13	-3.5
OTC	41.75	22.50	Parametric Technology (H)	40.00	-0.25	-0.6
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OTC	34.25	11.34	Platinum Software (H)	29.75	-4.25	-12.5
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OTC	61.50	52.25	Progress Software Corp.	58.25	0.25	0.4
OTC	7.38	2.16	Quantitative Optics Sys. (L)	2.16	-0.22	-9.2
OTC	32.00	15.75	Rainbow Technologies Inc.	24.00	0.00	0.0
OTC	11.38	4.25	Rasterops	8.11	-0.50	-5.8
OTC	15.25	3.63	Ross Systems	13.00	0.13	1.0
OTC	28.75	9.88	Sapiens Int'l. Corp. N.V.	25.75	0.50	2.0
OTC	14.50	5.50	Software Publishing Corp	6.75	0.25	4.2
OTC	14.50	2.63	Software Toolworks Inc.	14.50	1.13	8.4
OTC	2.75	0.75	Spinnaker Software	1.31	-0.25	-16.0
OTC	13.75	3.63	State of the Art	9.75	0.50	5.4
NYS	24.88	17.63	Sterling Software Inc. (H)	24.88	0.63	2.6
OTC	21.63	8.25	Struct. Dynamics Research	13.38	-0.63	-4.5
OTC	77.50	35.00	Symantec Corp	66.00	-1.00	-1.5
OTC	20.50	6.38	Synoptics Comm Assoc.	19.88	0.25	3.9
OTC	25.50	10.00	System Software Assoc.	14.75	-1.50	-9.2
OTC	6.88	2.75	Teknic Corp.	5.50	0.25	4.8
OTC	26.50	13.25	Vieworks Systems (H)	23.38	-1.38	-5.6
OTC	23.50	5.50	Walker Interactive Systems	7.75	1.13	17.0
OTC	3.19	1.00	Wordstar	1.09	-0.09	-7.9
NYS	32.88	12.25	Advanced Micro Devices	20.75	-3.13	19.8
NYS	28.00	19.00	Analog Devices Inc.	25.00	-2.00	-7.4
OTC	38.63	11.88	Atmel Corp	35.13	0.50	1.6
OTC	6.25	2.75	Chips and Technologies	4.88	-0.63	-11.4
OTC	39.75	13.00	Cirrus Logic	31.75	-0.38	-1.2
NYS	16.75	7.88	Cypress Semiconductor Corp.	15.50	-0.38	2.7
NYS	19.00	11.13	Dallas Semiconductor	17.00	-1.88	9.9
OTC	74.50	31.13	Intel Corp. (H)	68.75	-4.25	-5.8
NYS	19.25	6.00	LSI Logic Corp	15.00	-1.63	-9.8
OTC	26.75	11.06	Lattice Semiconductor	22.38	-0.75	-3.3
NYS	63.63	15.88	Micron Technology	47.63	-5.25	-9.9
NYS	105.13	44.38	Motorola Inc.	86.75	-3.25	3.3
NYS	21.75	10.13	National Semiconductor	18.13	-2.25	-11.0
OTC	13.75	6.50	Sierra Semiconductor	7.63	-0.63	-7.6
OTC	51.75	25.75	SynOptys	45.50	-1.50	-3.2
NYS	84.75	44.00	Texas Instruments	68.25	-6.25	-8.4
OTC	18.88	6.50	VLSI Technology	15.75	-1.38	-8.0
OTC	14.38	3.00	Weitek	12.13	0.00	0.0
ASE	9.61	3.63	Western Digital Corp.	5.13	0.00	0.0
OTC	56.50	14.50	Xilinx (H)	45.38	-1.38	-2.9
OTC	37.50	18.00	Zilog Inc.	34.88	-0.13	-0.4
OTC	24.75	7.88	American Power Conversion (H)	21.13	-0.88	-4.0
OTC	22.75	15.50	Barctec Inc.	20.75	0.00	0.0
OTC	14.00	3.50	Cambex Corp.	4.25	0.25	6.3
ASE	10.38	3.00	Cognitronics Corp.	4.13	-0.13	-2.9
NYS	25.50	9.00	Conner Peripherals	9.50	-0.50	-5.0
OTC	38.50	16.50	Creative Technologies Inc.	21.00	-1.00	-4.5
OTC	30.75	6.50	Data Race Inc. (L)	7.25	0.75	-9.4
ASE	13.25	5.50	Datarain Corp	9.38	-0.38	-3.8
NYS	88.00	6.75	EMC Corp.	34.38	-2.00	-5.5
OTC	10.50	5.25	Esbilen Corp.	6.88	0.25	3.8
OTC	19.00	14.00	Evans & Sutherland	17.00	-0.50	-2.9
OTC	20.63	7.50	Exabyte	10.50	0.00	0.0
OTC	14.00	9.25	Intelligent Info. Systems	24.50	-0.50	1.9
OTC	8.88	2.50	Iomega Corp	2.75	-0.13	-4.3
OTC	14.25	5.75	IPL Systems Inc.	8.00	0.50	6.7
OTC	24.00	14.25	Komag Inc.	15.00	-1.25	-7.7
OTC	19.63	4.38	Maxtor Corp.	4.63	-0.50	-9.8
OTC	30.00	5.75	Metropolis Corp.	6.50	-0.75	-3.7
NYS	137.00	97.25	3M Corp	103.75	1.00	1.0
OTC	7.75	4.00	Printronix Inc.	7.25	0.00	0.0
NYS	17.25	7.38	QMS Inc	9.00	-0.13	-1.4
OTC	17.88	9.50	Quantum Corp	10.75	-0.75	-6.5
OTC	7.13	3.13	Radius Inc	3.75	0.00	0.0
NYS	16.88	9.25	Recognition Equipment	16.75	0.88	5.3
OTC	13.00	3.75	Reexon Inc.	3.88	-0.25	-6.1
OTC	22.38	12.13	Seagate Technology	17.38	-0.13	-0.7
NYS	45.00	18.00	Storage Technology	26.75	-0.50	-1.8
NYS	27.88	17.63	Tertronix Inc.	23.00	-0.88	-3.7
NYS	89.88	70.13	Xerox Corp.	72.13	-1.25	-1.7
OTC	23.75	14.88	American Mgmt. Systems	18.00	0.50	2.9
NYS	4.75	2.38	Anacomp Inc	2.88	-0.13	-4.2
OTC	25.84	11.84	Analysts Int'l. (H)	21.00	0.00	0.0
NYS	56.13	45.13	Auto Data Processing	50.63	0.88	1.8
NYS	19.50	13.00	Ceridian Corp. (H)	19.50	1.38	7.8
NYS	17.75	13.13	Comdisco Inc. (H)	17.00	-0.63	-3.5
OTC	12.88	4.50	Computer Horizons	12.88	1.38	12.0
NYS	94.88	66.00	Computer Sciences	80.75	-1.25	-1.4
OTC	9.25	6.00	Computer Task Group	6.88	-0.13	-1.8
NYS	40.50	19.00	CompUSA Inc	26.00	-0.50	-1.8
OTC	34.25	7.00	Corporate Software	11.50	0.13	1.1
OTC	12.75	6.63	Egghead Discount Software	7.00	0.13	1.8
NYS	35.88	24.00	General Motors E (EDS)	28.50	-0.13	-0.4
OTC	25.50	18.75	Inacom Corp.	18.00	0.50	2.9
OTC	24.13	8.11	Intelligent Electronics (H)	23.25	0.25	1.1
OTC	16.50	7.38	Meniga	15.00	0.63	4.9
OTC	27.50	5.75	Micronage Inc. (H)	27.50	3.00	12.2
OTC	34.75	20.34	Paychex (H)	33.75	-0.25	-0.7
NYS	87.25	21.63	Policy Management Sys.	23.88	-2.75	-10.3
NYS	43.63	20.75	Reynolds and Reynolds	40.00	-0.25	-0.6
OTC	20.75	12.13	SERCorp (H)	20.75	1.25	6.4
OTC	25.13	17.50	Shared Medical Systems (H)	24.63	0.13	0.5
OTC	12.63	5.75	SHL Systemhouse	9.38	-0.25	-2.6
OTC	30.75	20.00	Software Spectrum Inc.	24.00	-1.50	-5.9
OTC	42.75	26.25	Sundard Data Systems (H)	42.00	3.00	7.7
NYS	4.38	1.13	Ultimate Corp.	3.38	0.00	0.0

KEY: (H) = New annual high reached in period (L) = New annual low reached in period

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Briefs

Microsoft buys code

Microsoft Corp. beefed up its efforts to combat Novell, Inc.'s NetWare with its recent acquisition of both code and several programmers from Webcorp., maker of a peer-to-peer operating system. Microsoft has already incorporated some of the capabilities of Webcorp.'s technology into its NetWare Requester for Windows NT and will move that product into beta testing in the next few weeks.

Iomega plans layoffs

Iomega Corp. said it plans to cut fewer than 100 employees in nondirect labor positions in the next few weeks. The layoffs follow a recent 25% price cut on select products and are part of an overall expense reduction plan. The Roy, Utah, firm employs approximately 1,100.

SHORT TAKES Paul Allen, a co-founder of both Microsoft and Asymetrix Corp., has paid $17.5 million for a stake in Metricom, Inc. The Los Gatos, Calif., firm's technology sends wireless electonic mail.... IBM has agreed to sell back a roughly 5% stake in Hogan Systems, Inc. to that company. IBM purchased the stake in September 1990; details of both transactions were not disclosed.... Joel Appelbaum has resigned as president and chief executive officer of Novell's Univel division.... Network Computing Devices, Inc. has named Judith Estrin, 38, president and CEO. She succeeds her husband, William Carrico, 43, who remains as chairman.... AST Research, Inc. has an expanded credit line of $225 million.... Legent Corp. has elected Mario Morino to its board. A former company executive, he remains a "significant" shareholder.... MCI Communications Corp. has consolidated its U.S. operations and set up a new business unit overseeing international business.

Vendors seek patents as copyright suits grow

By Mitch Betts
NEW YORK

Faced with a confusing mixture of court rulings on software copyrights, computer lawyers are coming up with increasingly creative ways to get more protection for vendors' intellectual property rights.

Speakers at the recent 14th annual Computer Law Institute in New York said they expect to see an acceleration of the trend toward supplementing copyright protection with software-related patents, which give the holder 17 years of monopoly rights.

David Beeder, a partner at White & Case in New York, said there are an estimated 16,000 patents for software-related inventions. The litigation that will test their mettle has already begun, he added.

One of the biggest cases goes to trial in December. Stac Electronics, Inc. is suing Microsoft Corp. for patent infringement over the data-compression utility in DOS 6.0.

The disadvantages to patents are their expense and the fact that they take about two years to wind their way through the U.S. Patent and Trademark Office. In addition, experts said patent applicants must meet high standards when proving their invention's novelty—it cannot be something obvious or "as old as the hills."

Is it truly novel?

On the other hand, a patent provides very powerful and broad protection for a truly novel invention. Bender said that if the first computerized spreadsheet had been patented, for example, that would have precluded all subsequent computerized spreadsheets.

The big problem now is that many existing patents are probably invalid, attorneys said, due to poorly trained examiners and the lack of a database of technical literature on the "prior art." That problem may be temporary, however, because the industry is funding a Software Patent Institute in Ann Arbor, Mich., to develop a database to help patent office examiners.

Bender said he expects to see more software patents filed as a result of several court decisions that nibble away at the scope of copyright protection for software, such as the 1992 case of Computer Associates International, Inc. v. Altai, Inc.

Because the courts are not speaking with a unified voice on software copyrights, some attorneys are urging their high-tech clients to consider not only patents but also an even more creative approach called "trade dress."

Trade dress is a category of trademark law that covers the total appearance of a product, including its color, size, shape, texture and graphics. Classic examples include the shape of a ketchup bottle, the pink color of fiberglass insulation and the colorful decor of a Mexican restaurant.

Presumably, trade dress could extend to the "look and feel" of a software prodoct's graphical oser interface. "Trade dress is another potential weapon for protecting software," said Allen R. Grogan, a partner at Blanc Williams Johnston & Kronstadt in Los Angeles.

There is little or oo case law testing the use of trade dress for software, Grogan said, but "the attitude is: Try it and see if it works."

Trade dress could also be used to protect the look and feel of a computer-generated report or form. In the 1982 case of Computer Care v. Service Systems Enterprises, Inc., the U.S. Court of Appeals in Chicago stopped a competitor from copying the format of a firm's computer-generated reports and letters to car owners.

Examples of patented GUIs

Holder	Title
AT&T Bell Laboratories #4,555,775	"Dynamic generation and overlaying of graphic windows...."
IBM #5,121,477	"System for interactively creating action bar pull-down windows...."
Next, Inc. #5,146,556	"System and method for managing graphic images"
IBM #5,179,656	"Three-dimensional directional pointer icon"
IBM #5,179,700	"User interface customization apparatus"

Source: U.S. Patent and Trademark Office, Washington

Borland sees profitable quarter

By Michael Vizard

Despite the freezing of Quattro Pro spreadsheet sales this past quarter in anticipation of the release of Quattro Pro 5.0, Borland International, Inc. last week said it expects to report its third consecutive quarterly profit later this mooth.

Although Boriand has shipped about t5,000 copies of Quattro Pro 5.0 since its introduction last month, a company spokesman said that overall revenue for the quarter will be down from the previous quarter due to costs associated with an exchange program for resellers holding earlier copies of Quattro Pro that might violate copyrights owned by Lotns Development Corp. [CW, Aug. 30].

Borland is expected to incur a charge of anywhere from $t0 million to $t00 millioo as a result of losing a copyright infringment battle with Lotus. That case is now under appeal.

In its last quarter, Borland reported $6.2 million in net revenue on sales of $t23.4 million. In the previous quarter, it reported a $5.t millioo net on sales of $tt7.1 million. Last December, the company reported a $6t.3 million loss on sales of $104.3 million.

Point/counterpoint

The Computer Law Institute featured a lively debate between the software industry's two warring camps: the "copyists" and the "maximum protectionists."

Arguing on the copyist side was Peter M. C. Choy, deputy general counsel at Sun Microsystems, Inc. in Mountain View, Calif. He claimed reverse-engineering and "interim copying" of software is necessary as competitors can find ways to make their software compatible with products that are de facto standards.

Choy further asserted that software is more utilitarian than literary works and therefore should get "thin" copyright protection to promote interoperable systems, rather than the interests of monopolists. "Open systems are like heaven. Everybody wants to be there, but nobody wants to die to get there," Choy said.

Protectionist Victor Siber, senior corporate counsel at IBM in Stamford, Conn., argued that compatibility is a business strategy, not part of copyright law. The copyists are merely "free riders" who want to imitate successful and innovative competitors, he said.

"What's going on here is really a war between those who believe the industry will flourish if they protect innovation and those with less creativity who want to allow loopholes for imitation," said another protectionist, Henry B. Gutman, a partner at O'Sullivan Graev & Karabell in New York and lead counsel for Lotus Development Corp. He has represented Lotus in a series of successful copyright infringement lawsuits. —*Mitch Betts*

Wysiwyg

What driving your car would be like if operating systems ran it:

Windows: You'd get into your car and drive to the store very slowly because a freight train is attached to the back of your car.

Windows NT: You'd get into your car and write a letter that says, "Go to the store." Then you'd get out of the car and mail the letter to your dashboard.

OS/2: After fueling up with 6,000 gallons of gas, you'd get into the car and drive to the store with a motorcycle escort and marching band in procession. Halfway there, the car would blow up.

Taligent: You'd walk to the store with Ricardo Montalban, who tells you how wonderful it will be when he can fly you to the store in his jet.

EUROFACTS

Number of Americans who have used a computer
79%

Number of Europeans
70%

Number of Americans who have sent a fax
43%

Number of Europeans
33%

Number of Americans comfortable using a computer
54%

Number of Europeans
30%

Base: 2,100 Europeans and U.S. customer data
Source: Dell Computer Corp.

Winner. The most unfortunately named upgrade program: **Up Yours!**

—Frontline Distribution Ltd., Hampshire, England

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The 5th Wave *by* Rich Tennant

Inside Lines

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At your service

Look for Microsoft to soon unveil a directory service that would provide applications with

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with all its inherent evils. Intel feels we succeeded, popular did not mean open, Dave.

At your service

Look for Microsoft to soon unveil a directory service that would provide applications with connectivity to resources around the enterprise with Novell and Banyan directory services. The service will also feature a Kerberos-compliant security system that will be a "quantum leap" over what's already available, sources says.

Close to you

Global value-added network service provider Infonet plans to open up a use-based pricing option of LAN-interconnect-oriented services and expand network users, according to a company. Infonet also plans to help International frame-relay services with an offering in January, the source said. In the first half of next year, the company will focus on bringing its services closer to the desktop with moves that could include ISDN adapters and services.

The word is getting out

WordPerfect is getting ready to expand its PC application base. The company plans to launch later this month its first personal information manager and will bring out a Works for Windows package, tentatively called Small Office Suite.

HP responded to charges last week that it is paying residents of India who come to the U.S. below-market wages as contract programmers. The charges, which surfaced on CBS' 60 Minutes, were amplified on Tuesday a suit filed in a California superior court by Californians for Population Stabilization. The suit argues that the hiring practice drives down wages for U.S. workers. An HP spokeswoman said 375 Indian residents are doing contract programming, staying in the U.S. an average of 18 months services about $60,000 per programmer. found out that the Indian programmers were receiving the full $60,000 because body shops were that said, and the contracts expire Oct. Phone, CompuServe News Editor Alan Alger with more tips at 74, (508) 875-8931 or 76537,2413, respectively. Or try Computerworld's 24-hour voice-mail tip line at (508) 620-7865.

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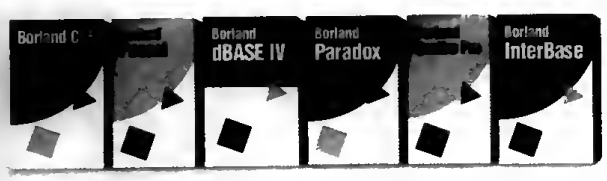

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